

20th Anniversary Issue

THE ANTIQUE

RADIO

GAZETTE

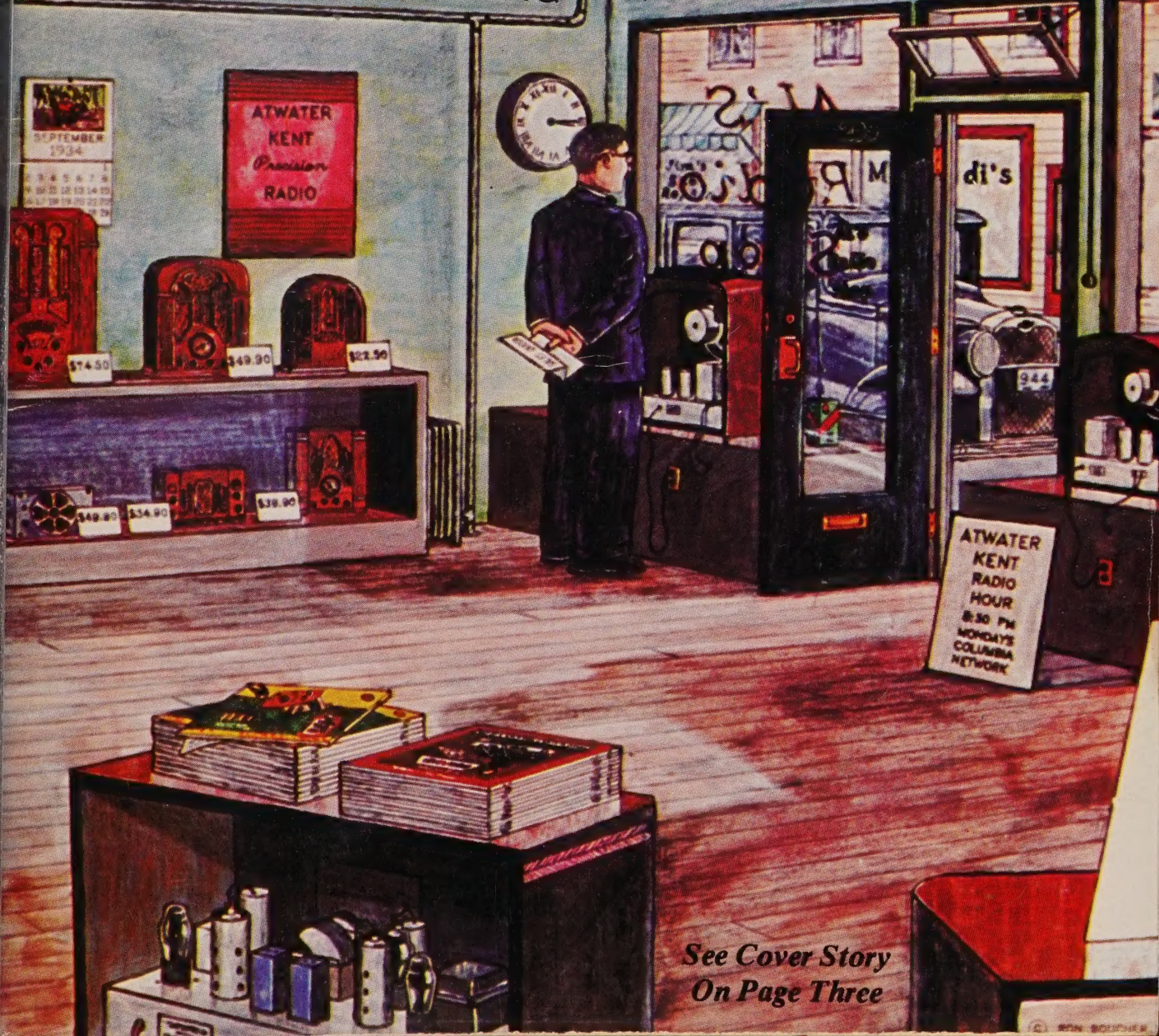


VOL. 20

SPRING

1992

NO. 1



See Cover Story
On Page Three

The Antique Radio Gazette is the official publication of The Antique Radio Club of America, Inc.

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Publication dates for the Gazette:

March 31	February 15
June 30	May 15
September 30	August 15
December 30	November 15

We are working to expand this to six (6) issues per year.

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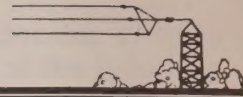
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Report On ARCA-PARS Convention
Radio Transistor Topics - Ross Smith
Mel's Corner



President's Page



By Lloyd E. McIntyre

For many of you this has become the most awaited issue of the year. With this #1 issue comes the announcement of another season of collecting and the excitement of receiving the ARCA convention brochure.

It seems each year we achieve a new high in programs offered at these conventions. Looking back over the great meets of Baltimore (last year) and Cincinnati (the year before), one would believe there is just no way you can keep putting together ever-better conventions. With the help of our new program director, John Haught, of the Pittsburgh Antique Radio Society, '92 will surpass all others.

I am excited as I look over the program, as I am sure you will be also. As I do each year, I am looking forward to meeting with old friends and making new ones.

We are indeed privileged to have as our host the very inspiring group known to many as "PARS". Several years ago we did a zip code study and discovered that Pittsburgh is the exact middle of the ARCA membership. Ever since then it has been the desire of this president to hold our convention in Pittsburgh. Now that it has become a reality, I hope to see all of you there.

For a moment I would like to look at another exciting area of our collecting society, and that is publications. There are many hundreds of collectables from

matchbooks to automobiles. There are, of course, books written and published in all of these many areas. Only in the last five years or so have we in this "radio fraternity" had more than a handful of books available. Now it seems that we see a new publication every month. It is kind of nice to spend the winter months looking over all of these new books when convention activity is low. I refer you to Alan Douglas and the completion of the long awaited *Volume 3* - it was worth the wait. Also there was the *Evolution of Radio* by Scott Wood. What about that very large one by Michael Schiffer, *The Portable Radio in American Life*? A complete review is included in this **GAZETTE**. Phil Collins has a new one on the way. This may be released as you read this letter. Sue and Marty Bunis are working on a new book. I mention all of this to make one big point. The history of radio played one of the leading roles in the growth of this great land. It lead us to the cutting edge of electronic technology that we enjoy today and many people are beginning to recognize this great invention as a central part in the "Technology Revolution". Without radio and its related development, you can forget all the other things that bring so much enjoyment. From television to your microwave oven, from your cellular phone, to the satellite dish. The transistor

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Welcome to Al's Radio Shop!

(SEE FRONT COVER)

Welcome to Al's Radio Shop! Let's pretend that we could step into this picture and see what we can discover in looking around Al's shop!

First, the calendar on the wall tells you this is September 1934. From the poster next to it, we can see that one of Al's product lines is Atwater Kent. The new models for 1935 have just come out and we can see several of them on the counter. There's a model 447, a 206 and a 944 cathedral. In the display case there's a model 666 auto radio, an 825 compact and a 145 upright. He's got the list prices in front of each set.

There are some shiny new consoles on the floor facing away from us. These can't be Atwater Kent. If they were, the tube shields would be a gold color. The console on the right has a sign on it and if we could see the front of it, we could probably find out what other brands Al carries.

There are table models in the windows that are hooked up, ready for demo, antenna and all.

There are some magazines for sale on one of the consoles. These are *Shortwave Craft* and *Radio Craft* for October 1934. These came out midway through September so that narrows the probable date down to the latter part of September.

The sign on the floor tells us about the Atwater Kent radio show on the air on Monday nights.

That may or may not be Al's 1929 Chevy parked outside. We can even surmise that since the sun is coming through the door at 3:15 in the afternoon, his shop faces west.

The radiator in the corner indicates that it gets cold in the town where Al's shop is located. It's still warm enough on this day in September to have the front door open.

Al doesn't seem to be too busy right now, he's waiting for customers and there are none in sight. He has just received a sales quota notice from one of his suppliers.

He's probably worried about business. Maybe he's thinking about his upcoming holiday sales campaign while he's waiting.

This is during the great depression so business isn't that great. People are buying cheaper radios and Atwater Kent doesn't want to compromise their image of quality . . . thick cabinets, heavy chassis' . . . "precision radio".

There are signs that the economy may be getting better, but what Al doesn't know is that Atwater Kent will not be in business much longer. Before long, war will be breaking out and Al is young enough to possibly get involved in that.

Little does he know that some day, people will regard the tools of his trade as prized items.

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CHARTER MEMBERS

On this the 20th anniversary, we have listed, at the request of member **Daniel Gaidosz**, the original charter members who are currently active. With a list such as this, time sadly takes its toll. We are very fortunate to be able to honor all those current charter members who had the vision of what someday the organization could be. Many organizations,

corporations and even countries and their governments many times do not make it half as long as ARCA has.

Let's all look forward to the 25th anniversary as our next milestone.

If your name was omitted and you are a current charter member, please advise our secretary.

Peter C. Brickey
John H. Caperton II
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Ashman C. Stoddard
Dr. E. E. Taylor
C. A. Trivett
Jim P. VanSant
William L. Wall
Ralph O. Williams
James C. Winnette
Russell Worthy
Meredith L. Young

MEMBER LETTER

I was looking at the ARCA summer issue of 1991 and there was an article about the Boonton Radio Corp. of New Jersey. I have been trying to find someone who might have a manual or copy for a Boonton Radio Corp. model 202-B serial #1942. I have restored the FM section but I am having

problems with the AM section. I hope someone out there can help me. I have been a member of ARCA and IHRS for several years. This is the first time I have ever placed an ad in the ARCA.

Sincerely, John S. Jones, 4453 S
200 E, Anderson, IN 46017.

A Note From The Guest Editor

When Lloyd took over as the publisher of the *Gazette* he instituted an excellent idea about how to assure the membership of a challenging and intriguing magazine. His idea was to assign a Guest Editor to do the feature articles of each issue. Last year he asked me to work on the Spring issue and I asked Chris Bacon to participate. Together we provided the Armstrong material in that issue. Lloyd asked again this year and I'm pleased to fill the role.

Chris and I feel that there is a tremendous story to be told about the work of RCA at Radio Central here on Long Island. We think that the *Gazette* is a good place to tell it. There is so much to be researched and written that we have only sketched the outlines of the story. In this issue we tell about the Central facility, its derivation from Marconi and the background history of its first transmitter.

In the next issue we expect to carry the story forward with information about the antennas, the diversity receivers, and the teletype equipment that made Radio Central facility the greatest facility of its kind in the world. We will include our references in that issue. While some of the material is heavy we have tried hard to keep it readable and to make it informative to our ARCA members whose interest is radio history.

Chris Bacon and I have committed ourselves to capturing and recording the history of Radio Central. Bob McGraw and Marshall Etter spent most of their working careers at the facility and have most cooperatively aided us in all that we have done. We (and I include all of ARCA) owe them a very big *Thank You* for opening their files and their hearts to our efforts. Chris and I hope that we can deserve their good will.

(Continued on Page 6)

The Mid-Atlantic Antique Radio Club will return to the Applied Physics Laboratory (APL) of Johns Hopkins University beginning in April, and will hold all meetings there on Saturday evenings, with the exception of the October picnic. Details are as follows: (Remember all meetings Saturday evening, starting at 6:00 PM unless otherwise specified).

April 25

May 23

(Our Old Equipment Contest on this date!)

June

No MAARC meeting in June due to ARCA convention in Pittsburgh, 4-6 June

July 18

August 22

September 19

October 4

SUNDAY meeting; MAARC's annual picnic, Lyon farm

November 21

December 19

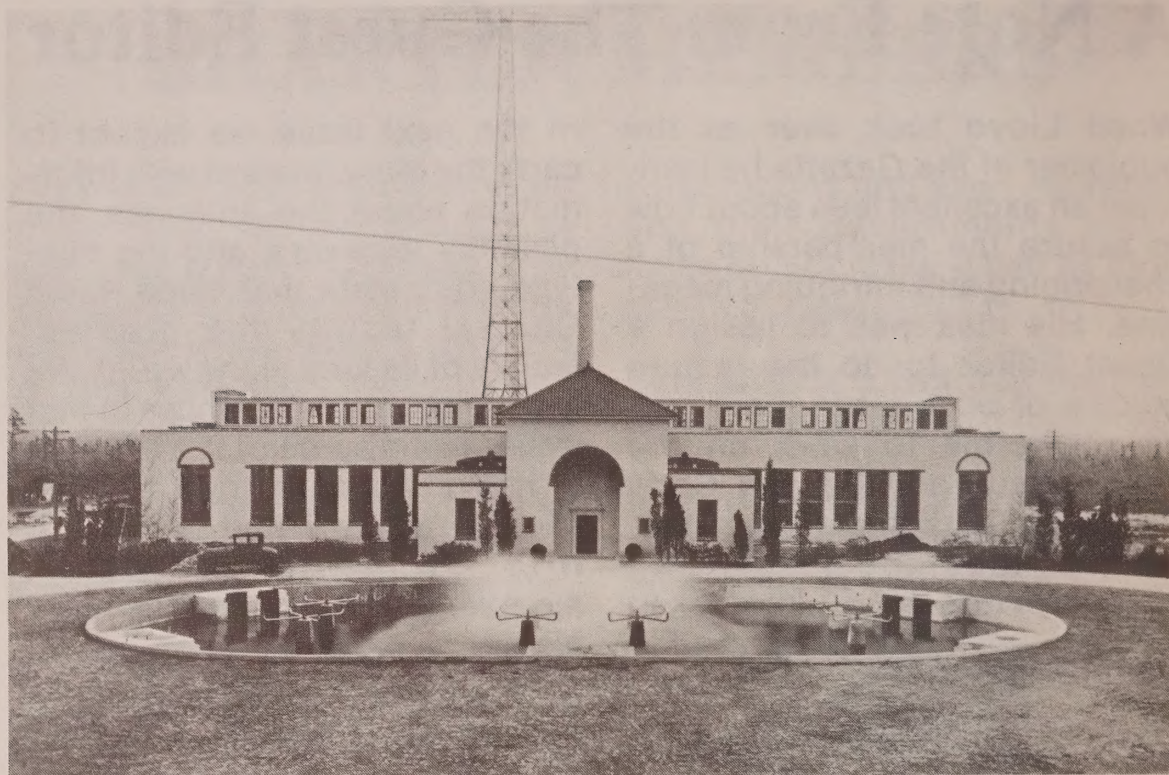


Figure 1: ROCKY POINT

Report From Radio Central

BY: CHRISTOPHER BACON

In collaboration with:

Bob McGraw, Marshall Etter, and Ralph Williams

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In a speech before the Federal Communications Commission in 1940, David Sarnoff characterized the Radio Corporation of America as a tree with three branches: manufacturing, broadcasting, and communications. Most people interested in the history of radio are familiar with at least some of the products and inventions of RCA's manufacturing "branch" and the powerful influences of NBC, the radio and television broadcasting "branch," communications, is not so familiar. It is hoped that the present series of articles will help

change that, for RCA Communications played a very large part in bringing the world together during the twentieth century, and this may ultimately be considered one of RCA's greatest and most lasting achievements.

Perhaps RCA Communications was overshadowed by the other branches of RCA because it was a utility whose primary customers were businesses and governments, and it did not have the daily, personal impact on the public that NBC did and still does. Nor did it create the radios,

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Report From Radio Central *(Continued from Page 6)*

televisions, and other products that reshaped our day-to-day lives as did RCA's manufacturing divisions. But in the first years of its existence, communications was RCA's "raison d'être," and provided the means for RCA's expansion into large-scale manufacturing and broadcasting. With the emergence of the other branches of RCA, the original one was incorporated as RCA Communications in 1929. It developed into a huge worldwide short wave radio network that offered a variety of Teletype, telephone, broadcast, and facsimile

services. In its later years, computer data and television relay capabilities were added, and satellites and coaxial cable first augmented and then replaced the shortwave network.

Another reason RCA Communications is not as famous as RCA's other branches is that its technology changed at a blinding pace. Many of its accomplishments were obsoleted by new developments before their historical impact could be assessed. If there was one thing RCA's

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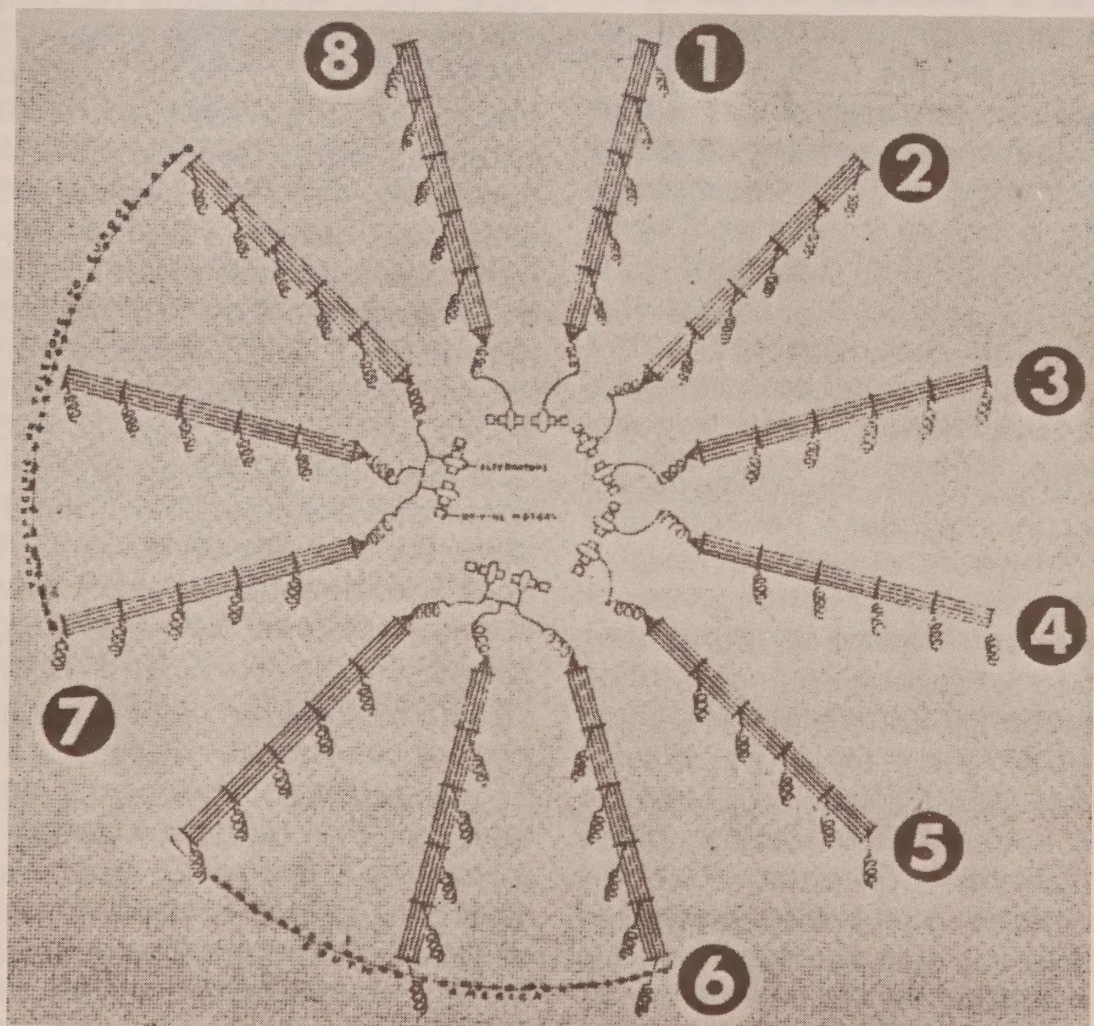


Figure 2: THE TRANSMITTING WHEEL

Report From Radio Central *(Continued from Page 7)*

managers and engineers understood, it was that clinging to the past — no matter how splendid — was both unprofitable and risky in a highly competitive business like communications, and by the late 1970s the short wave network was an anachronism. The short wave operations had only reached their peak in the mid-1960s, but as Bob McGraw, a former technician at RCA's Riverhead Receiving Station said, "like blacksmiths watching the first automobiles coming down the road, we knew the end was getting nearer every time a few more of our circuits got transferred to satellites." Unlike radio and television broadcasting, by the time people outside of RCA Communications' short wave radio network began appreciating its history, much of it was already gone. A proper understanding of the technological history of RCA Communications begins with the realization that nothing of this size simply springs up overnight. (see "*Beginnings*" in this issue)

Starting with the examples set by Macroni's wireless network and land-line telegraph systems, virtually everything from antennas to terminal equipment had to be developed and put into operation, often before anything similar existed elsewhere. Consequently, the organization that became RCA Communications in Riverhead and Rocky Point, New York. It is no exaggeration to say that for nearly seven decades, the scientists and engineers at RCA Communications did not merely follow the

state of the art in their field; they defined it. Although many discoveries and accomplishments made at Riverhead and Rocky Point were publicized in technical journals, few attracted much attention outside of engineering circles.

A brief overview of just a few of the discoveries and research projects from Rocky Point and Riverhead reveals a goldmine of radio history. It was at Riverhead that Dr. Harold Beverage developed the technique of diversity radio reception, which eliminated short term fading, one of the most serious drawbacks to using short wave radio for long distance communications. Dr. Beverage went on to do much of his most important work on antennas here. General Electric performed the first experiments with high power vacuum tube transmitters at Rocky Point, using an Alexanderson alternator running at low power as an exciter for the tube transmitters. Those experiments were so successful that the alternators (and spark gap transmitters) immediately became obsolete, and the door was opened for short wave communications. The first long-range single sideband radio channels were established between Rocky Point and England in 1923. Frequency shift keying, the basis of today's computer modems and fax machines, got one of its first trials using one Alexanderson alternator at Rocky Point to send the "mark" signals and another alterna-

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Figure 3: RIVERHEAD

Report From Radio Central *(Continued from Page 8)*

tor at Tuckerton, New Jersey to send the "spaces." While this was too unwieldy for regular use, it proved the merits of the system. In the 1930s the first radiophoto and facsimile message services were offered by RCA Communications, using equipment perfected by the organization. Some of the first efforts to record and comprehend the effects of sunspots on short wave propagation were made at Riverhead, and in the 1940s, experiments with VHF and UHF radio waves paved the way for television broadcasting.

Of course, as a provider of services, the main business of RCA Communications was carrying messages for other businesses, the public, and the government. It wasn't so long ago that undersea cable telephone and telegraph service to other countries was limited, slow, and very expen-

sive. In the 1930s, RCA Communications had circuits to 43 countries and 11 major American cities, and it was often the fastest, most reliable, and least costly way to get a message overseas. RCA Communications also offered services to broadcasters such as relaying radio programs and precision carrier frequency measurements.

Originally, all traffic was handled in Morse code using 200-word-per-minute paper tape senders and ink recorders, as was typical for wire telegraph operation in the 1920s. Teletype circuits were introduced in the 1930s, originally using make-break keying, and later with frequency shift keying, but Morse code remained in use for some circuits into the 1950s. There was some resistance to changing over to Teletype from

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Report From Radio Central *(Continued from Page 9)*

some of the smaller countries served by the network, so RCA engineers developed machines that could translate Teletype to Morse code and back again. As the demand for circuits grew, electromechanical multiplexing arrangements were devised to fit four Teletype signals into the space formerly occupied by one. Single sideband operation and electronic multiplexing eventually made it possible to fit thirty Teletype channels into one voice channel. Of course, such feats would be simple for today's microchips, but RCA accomplished them with electromechanical devices and vacuum tubes in the days when silicon meant glass and little else.

The voice channels were also used for radiotelephone, facsimile, radiophotos, and relaying radio broadcasts. The radio broadcasts, radiophotos, and facsimile messages, which required higher quality audio circuits than ordinary voice to Teletype were handled by a separate Program Department. One of the more historic programs to pass through this department was Admiral Richard Byrd's broadcasts from the South Pole in 1929. Byrd's transmissions were received at Riverhead and then rebroadcast by the AM networks.

One might have thought that the outbreak of World War Two and the cessation of normal business activity would have meant lean years for RCA Communications, but this was not the case. Following Pearl Harbor, Sarnoff placed

all of RCA's facilities at the disposal of the government, and RCA went to work carrying messages for the Armed Forces. The Alexanderson alternators, long considered out of date, took on a special importance when it was found that their long wave signals were easier for submarines to copy than short wave signals. Arrangements were made to key the Alexandersons at Rocky Point directly from Washington, and they remained in the service of the U. S. Navy throughout the war. One alternator from RCA's Marion, Massachusetts station, and another from its Bolinas, California installation were moved to Haiku, Hawaii, to provide communications for the Pacific Fleet. The Haiku installation was designed by J. L. Finch, RCA's Plant Design Superintendent in New York. Mr. Finch was assisted by Marshall Etter, who went on to become Engineer In Charge of Rocky Point and Riverhead.

The first challenge the new company faced was to establish a worldwide communications network independent of British Marconi. Short wave radio was yet to be discovered, so the network was designed for long wave operation. These waves are most effective over bodies of water and the loose, sandy soil of coastal areas. Then, even more than now, New York City was the business capitol of America, so the new network logically had to be centered there. But land in and around the city was costly

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Report From Radio Central *(Continued from Page 10)*

and too susceptible to interference for long wave radio stations. Eastern Long Island was a natural choice for such facilities because it is a coastal area with the prerequisite soil characteristics, and it then had thousands of acres of relatively inexpensive farmland ready made for the huge antennas that were necessary. The fact that it was largely undeveloped meant that interference was far less of a problem than it would have been elsewhere. Its proximity to New York City made telephone and telegraph links to the major business centers in Manhattan a simple matter, and the Long Island Railroad offered a convenient means of transporting people and equipment.

The practice of locating central offices in urban areas and con-

necting them by wire with transmitting and receiving facilities at remote coastal locations was used throughout the system. In most countries, RCA "tied in" with the existing telegraph networks, many of which were owned or controlled by the governments in those countries. Some countries such as Sweden and Poland did not permit foreign ownership of commercial radio facilities, and in these instances, RCA provided the equipment and installation expertise and then sold the stations to the governments in those countries. In America, RCA "tied in" with Western Union. "Via RCA" was not only RCA Communications' advertising slogan, it was the code anybody could use in the local telegraph office to send a message over the RCA network.

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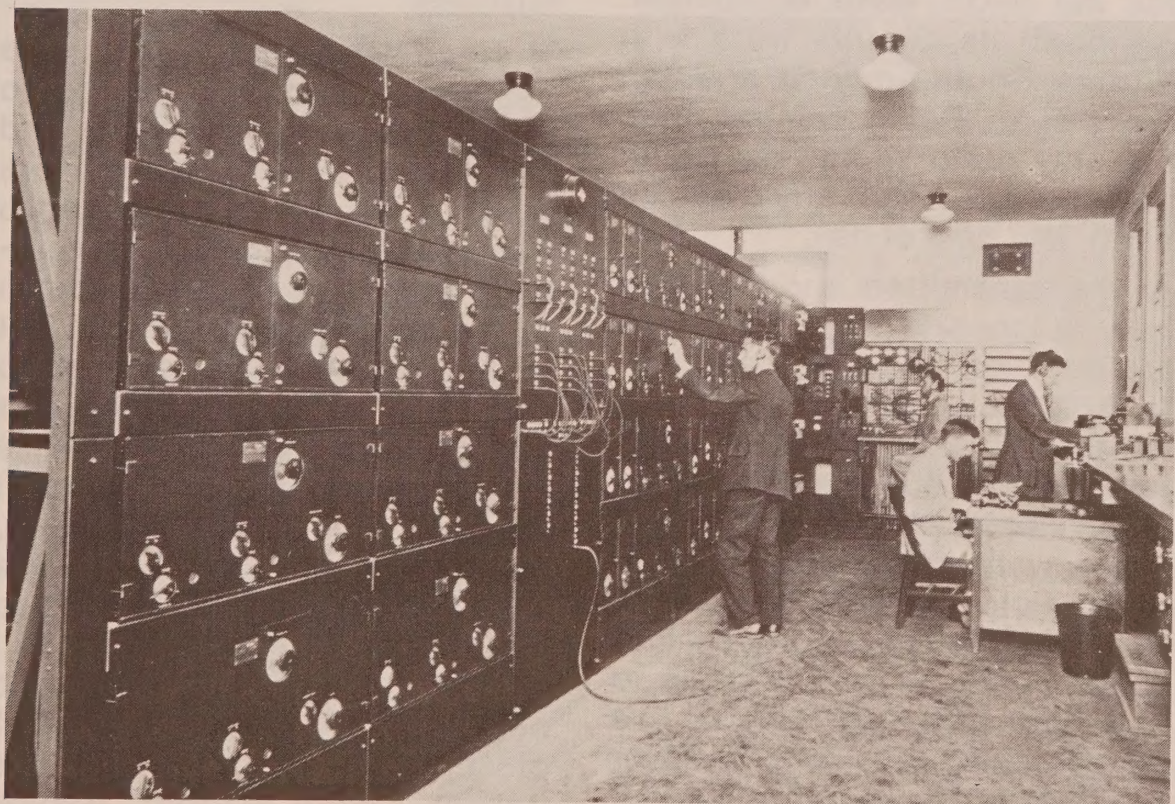


Figure 4: FOUR ROWS OF RECEIVERS

Report From Radio Central *(Continued from Page 11)*

An ambitious transmission facility was planned for a former 5,100 acre farm at Rocky Point, near the Island's North Shore. Opened in 1920, "Radio Central," as it came to be known, (Figure 1) was originally envisioned to have twelve antennas suspended from towers 410 feet high and arranged like the spokes of a wheel, fed from ten Alexanderson alternators (Figure 2). Only two of the antennas and two alternators were ever installed. "It was a good thing they didn't build the rest," said Marshall Etter, "because after the short waves were discovered, the whole thing would've been obsolete and RCA would have been in serious financial trouble." The alternators remained in service into the early 1950s and additional buildings and antennas were constructed for the short wave equipment. Although its circuits were with Europe, South America, and San Francisco, "Radio Central" was the only radio station ever built that could be heard any place on earth, any time of day.

As the transmitters and receivers had to operate simultaneously, the decision was made early on to build a receiving station at another location to avoid interference. A 2,000 acre parcel of undeveloped land in Riverhead, some twelve miles to the east of Rocky Point, became the "Ears of the East" following successful experiments by Dr. Beverage to determine the suitability of the site. (Figure 3 shows the Receiver Building as it was at the peak of traffic handling). As Bob McGraw

recalls the story, "It was in late 1919 or very early 1920 and Dr. Beverage and his crew were set up in a tent. The local residents were curious, and one went there to take a look. Upon his return he said, "it'll never amount to anything. They spent all morning trying to electrocute a snake!"

Whatever the outcome of that experiment, Beverage perfected the design of the antenna he had been developing for some time previously. The wave antenna, or Beverage Wire, as it was later called, was a long wire antenna of calculated height and length, terminated in such a way as to eliminate signals coming from anything but the desired direction. It became the standard for long wave radio reception, and gave RCA one of its first breakthroughs in the communications business.

The earliest receivers that were put in service at Riverhead to go with the Beverage antennas and the Alexanderson alternators were relatively simple radio frequency amplifiers with heterodyne detectors. The radio stages of the receiver were tunable but when a receiver was assigned to a link had to be considered as a fixed tune instrument. Because the incoming frequency was in the band from 15 to 22 kilohertz, the coils in the amplifiers were bank-wound inductors whose mutual coupling was controlled by moving the coils on tracks behind the panels. (Figure 4 pictures the receivers at the Belfast, Maine station). Belfast

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The Beginnings of Radio Central

BY RALPH WILLIAMS

With Bob McGraw, Marshall Etter and Chris Bacon

The beginnings of Radio Central, the extensive facility of the Radio Corporation of America (RCA) on the eastern end of Long Island's north shore is a fascinating story. Most radio historians are familiar with some of its beginnings but the details are only known to those who have searched them out by examining recorded contemporary data and verifying their findings with the people who were assigned there. Altogether, the story is worth recording and telling — if only because of the impact that Radio Central had on the world of electrical communications.

One place to start is found by looking at functions performed at Radio Central in the facilities at Riverhead and Rocky Point. The functional beginning is multifold: high speed radio-telegraph, antenna experiments, propagation studies, and transmitter development. Those beginnings are recounted in the accompanying articles in this issue of the Gazette. Another place to start is with the corporate parentage of Radio Central. That part of the story is told in this article by tracing the path from Marconi to Radio Central.

Upon realizing the possibilities for two-way message exchange without the limitations of land-based pathways (wires), Marconi moved from his home country, Italy, where his work was not appreciated, to England, where

his contributions to the art of communication were highly regarded. There he sought financing from his family and others who could envision the possibilities of his ideas. He had to secure financing in order to develop a practical wireless (radio) signalling system. His ideas attracted enough attention for interested financiers to set up the Wireless Telegraph and Signal Company in 1897. Its purpose was to provide the financial backing that was necessary to develop and implement a practical (and profitable) communication system. Marconi was made the chief engineer of the company. For more effective fund-raising (probably based on the attraction of identifying with Marconi) the name was changed to Marconi's Wireless Telegraph Company, Ltd. (Hereafter called British Marconi).

Marconi understood the potential of long range communications for both maritime and international use. Whether he also understood the details of the business of handling messages is not known but his advisors could see from the wire-telegraph business that the whole system had to be under the control of the company. Although the transmission medium was beyond anyone's control, Marconi and his business associates perceived the necessity of owning the facilities on

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Beginnings of Radio Central *(Continued from Page 13)*

both ends of their communications pathways. To assure control of marine communications, the shipboard stations were rented, not sold.

The limited range of both shipboard stations and (in the early days) land stations meant that a chain of stations had to be installed throughout the world. Therefore additional companies had to be set up in the several nations where maritime traffic would be heavy. For world-wide communications, which could be developed by increasing power and building larger antennas and by improving detectors, the land stations could also be utilized to serve large business interests operating throughout the world.

To this end two companies were put in place. The first subsidiary company was to operate between Europe and America and serve ships sailing in western waters. This was accomplished in 1899. The new company was incorporated in the state of New Jersey as the Marconi Wireless Telegraph Company of America (hereafter called American Marconi). The second subsidiary company was organized in 1900 as the Marconi International Marine Communications Company. Shortly after it was set up, it opened stations in England and Ireland.

For the Marconi Companies, the primary source of income was marine message service. Initially this was not a big business but with the recognition of the importance of ship safety and the

capability of wireless to provide communications over increasing distances, the number of stations and the revenues they earned built the Marconi name into a world force. Wireless companies other than Marconi's had been started, (e.g., de Forest) but they were not operated in the tight, efficient business manner that characterized the Marconi companies. The policy that the Marconi companies followed was to limit the technical upgrading of station equipment and to combine that with service restrictions (only Marconi stations would be answered by Marconi stations). These practices maintained moderate growth while avoiding over-extension and gave Marconi's companies survival. They also left the unpleasant flavor of monopoly.

By 1908 American Marconi had grown to five land stations and 40 marine stations. It bought United Wireless and thereby added 50 land and 400 marine stations. The company had also grown in its handling of international traffic. Trans-atlantic message service was routed through the station at Glace Bay, Canada and could provide service 20 hours per day. Modest growth continued until the beginning of World War I when the Navy took over nearly all of American Marconi's facilities, including the coastal stations and the shipboard stations on ocean-going vessels.

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Beginnings of Radio Central *(Continued from Page 14)*

This put American Marconi out of the trans-atlantic message service business but not out of the radio equipment manufacturing business. As early as 1907 a factory had been set up in Aldene, New Jersey, (near Elizabeth) to produce and modify wireless equipment for the company. This mushroomed into a major manufacturing facility that produced equipment for the Navy.

With the cessation of hostilities the Navy had either to return all the stations and other facilities that it had used for war purposes to their several owners or to have the law changed so that the government could stay in the public radio message service. Changing the law was opposite the American attitude toward government and therefore not likely. Still, the Navy had no liking for the idea of returning the bulk of American radio communication to a foreign agency, however much the point was

emphasized that American Marconi was not a foreign company. The Navy knew that the controlling interest was held by British Marconi. The solution to the problem was to have the British interests bought by an American Company.

At that time, 1919, General Electric was negotiating with Marconi about supplying Alexanderson alternators for use in international message service. The Navy prevailed upon GE to help resolve its problem. The way that was implemented was for GE to start a new company that could take over the British interests and receive the stations that the Navy held. That company was incorporated in November 1919 as the Radio Corporation of America. Almost all of the assets, financial, capital, technical and human were transferred from American Marconi to the Radio Corpora-

(Continued on Page 16)

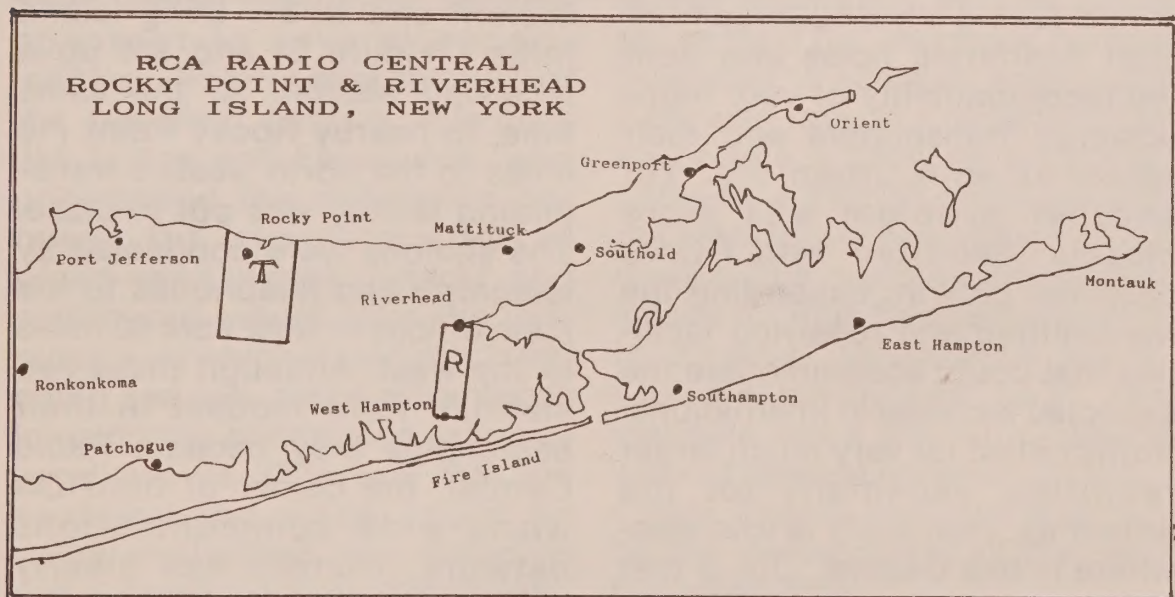


Figure 5

Beginnings of Radio Central *(Continued from Page 15)*

tion. Included was what turned out to be the single most important asset of all, David Sarnoff. American Marconi was dissolved as a corporation in April 1920.

RCA hit the ground running. The Marconi stations held by the Navy were turned over. The patents held by British Marconi as well as those held by American Marconi and, more important, those held by GE became the engineering base of the new company. The Alexanderson alternators at New Brunswick and the new ones that Marconi had ordered were the means that could lead RCA to world leadership in communications. However, there were problems that could prevent that realization unless they were solved. Marconi antennas, that traded height for transmitter power were ineffective in receiving because they offered no noise-reduction. New antennas were needed.

Receiving and transmitting stations near big cities suffered from both interfering noise and from the incompatibility of very high-powered transmitters and their antennas with urban life. Yet another problem was more closely identified with RCA's potential growth. Expanding the transmitting and receiving facilities that could accommodate the expected increase in international traffic called for very much larger facilities, especially for the antennas. That story is told elsewhere in this Gazette. Out of that work came a clear understanding of where the new stations could

best be located: the sandy shore line of the ocean, especially when the direction to the other station in the link did not cross any noisy sources. But because messages originated from and were delivered to New York, the location of the international station was restricted by the need for land-lines to handle the traffic between the new facility and New York.

Altogether, these demands pointed to locations like New Jersey (where Belmar and Tucker-ton were operating), Massachusetts (where Marion had been established), and Otter Cliffs, Maine, (where Beverage had done some of his wave-antenna experiments). There was, however, another location that had been used for experiments by Marconi and met, even better, all the requirements. This was the eastern end of Long Island.

Early in 1920 RCA purchased property at Riverhead (near the eastern end where Long Island forks - Figure 5) and set up a receiving station. At the same time, in nearby Rocky Point (16 miles to the north west) a transmitting facility was put in place. The stations were connected by telegraph and telephones to the main offices in New York 80 miles to the west. Although these two stations were modest in their beginnings they became Radio Central, the center of the RCA world-wide communications network. History has clearly demonstrated that the name "Radio Central" was prophetic.

The Alexanderson Alternators

by RALPH WILLIAMS

with Marshall Etter, Bob McGraw and Chris Bacon

In researching the story of the Alexanderson alternators used by RCA at the Radio Central transmitting site in Rocky Point, New York, the necessity of relating the machines at that location to all that were produced by General Electric became an important part of the story. In addition, this writer is interested in the technical details of the alternator construction and where the technology came from. Since many of the members of ARCA are also interested in that early technology, the authors of this series felt that a review of the early development and history would be of interest.

The idea of using a rotating machine to generate a radio wave goes back almost to the beginning of wireless when the desirability of using a continuous-wave train that came from an open spark discharge became apparent to several experimenters. Shortly after the turn of the twentieth century scientists like Lodge and Fessenden, who understood the difference between the characteristics of broad-band waves (spark) and continuous waves (like the output of a very high-speed machine) could see two major advantages in using the continuous (narrow-band) waves. One was that the narrow-band wave could be voice-modulated and detected without losing nearly all the intelligence that was being transmitted.

The second advantage was that by using tuning techniques in the receiver, the desired wave could be easily separated from the other narrow-band waves. Thus, the amount of power that was necessary to accomplish satisfactory message transmission could be greatly reduced, or conversely, a greater range could be obtained with the same power.

The problem involved in rotating machines was that increasing the frequency from those associated with power lines (50 or 60 or even 400 Hertz) meant increasing the rotational speed to values that were excessive for typical salient-pole, wound-rotor machines. A very early experimenter, Benjamin Lamme, working at Westinghouse, developed an alternator that pushed the technology of low frequency machines about as far as typical power generation devices could go. In 1903 his alternator reliably produced 10 kilohertz energy at a 2 kilowatt rate. In a report written by Lamme in 1904, he credits M. LeBlanc, a French engineer with the preliminary description of the design. The machine grew out of a need for high frequency energy in special telephone work. Lamme observed that the machine was a laboratory device without present commercial value (1904). That he was right is shown by the development of the next two alternators.

(Continued on Page 18)

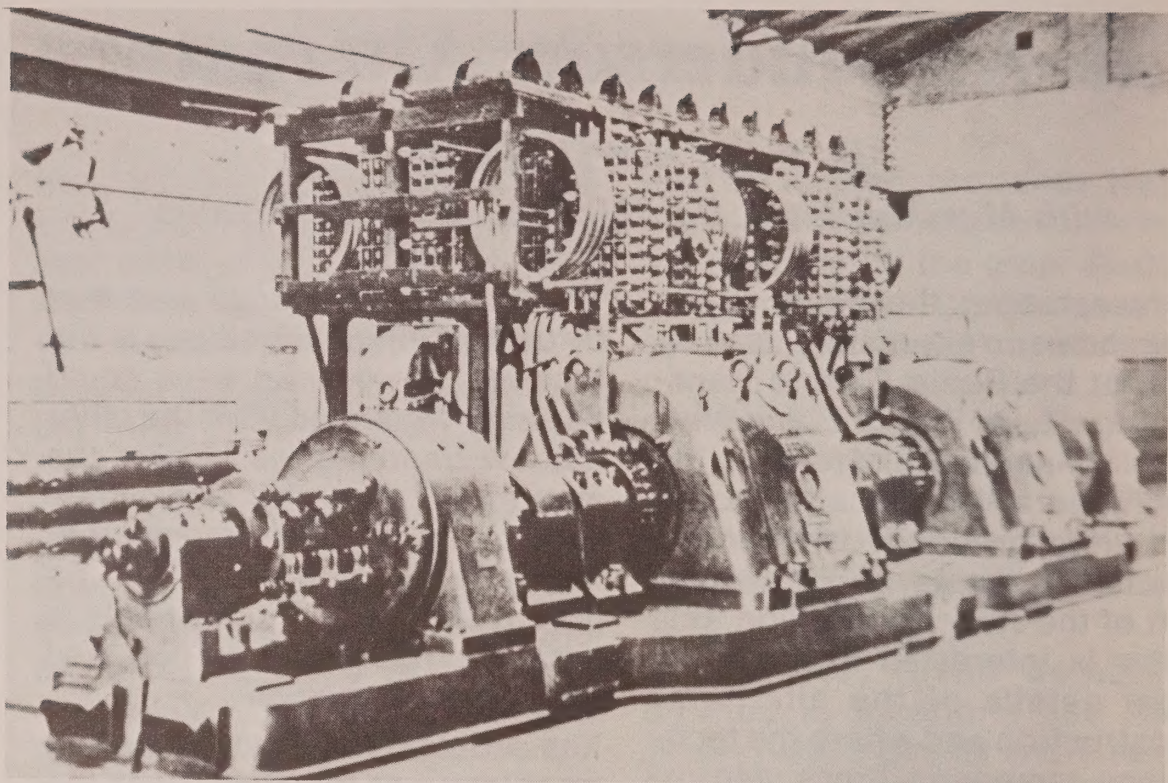


Figure 6: THE GOLD SCHMIDT ALTERNATORS

The Alexanderson Alternators *(Continued from Page 17)*

Reginald Fessenden was a part of the Westinghouse organization at the same time that Lamme built his alternator. No record of interaction between the two men has turned up as yet but it is easy to believe that Fessenden knew of Lamme's work and its limitations. One reason is that Fessenden recognized that by only changing the magnetic path characteristics (variable reluctance) and keeping the wires stationary, could a substantially higher frequency be generated.

His designs resulted in a slotted radial rotor that moved between fixed pole-pieces (a slotted stator). His coils in which the output voltage was induced, did not move but were carried by the fixed, slotted stator. More about this design is given below in the description of the design that was

produced by Ernst F. W. Alexanderson.

In Germany, Rudolf Goldschmidt was also working on a rotating machine that could generate radio-frequency energy. One of his designs used a wound rotor, not unlike Lamme's, with very closely spaced slots parallel to the rotational axis. There were corresponding slots in the stator. The rotor slots carried multi-stranded fine wire (Litz) and the stator slots carried a single 0.2 inch wire. The rotor diameter was nearly three feet so that at a rotational rate of 4000 rpm the peripheral speed was about 600 feet per second. The unique feature of the Goldschmidt design was that a part of the output was used to energize the rotor winding. (In the Lamme

(Continued on Page 19)

The Alexanderson Alternators *(Continued from Page 18)*

machine, the stator was excited by direct current with no feedback of the alternating component to the rotor.) The feed from stator to rotor resulted in a double frequency (harmonic) component in the output. By careful manipulation of the amplitudes of the rotor and stator currents against the magnetic characteristics of the iron from which both rotor and stator were fashioned, the predominant output was twice the frequency directly produced by the rotational speed. For the numbers given above, an output of 50 kilowatts at 50 kilohertz was possible. Figure 6 shows a Goldschmidt alternator with its antenna tuning coils mounted immediately above the machine.

Another German company, Telefunken, produced an alternator based on the variable reluctance principle (also used by Fessenden) and included in its application the idea of using the saturation characteristics of iron to generate a second harmonic. Their frequency changer (an out-board device) used the alternator output in an external circuit to produce a second harmonic substantially larger in magnitude than the fundamental. The rotor was a short cylinder of large diameter whose face was slotted. The stator had similar slots that carried the windings. In a variable reluctance alternator the slots and faces of both the rotor and stator pass by each other and cause the path character of the magnetic path to change substantially. The intensity of the magnetic field (produced by a

field winding) increases when the faces line up and decreases when the slots come into line. The changing magnetic field induces an alternating voltage in the stator coils. As with the Goldschmidt machine, the speed of the Telefunken rotor was limited the capability of the iron to withstand the centrifugal force on it. The efficiency of the machine was limited by the iron and copper losses but even more by the windage losses of the rotor's irregular surface.

The external circuit used two transformers with primaries fed from the alternator, secondaries connected in series to select a double frequency output from the non-linear currents circulating in two transformer cores. The windings included a third set arranged with a bias from a direct current source. The direct current forced the iron into partial saturation so that the field produced by the primaries was flattened on one half of the cycle and sinusoidal on the other. The secondaries summed the results which included a high-level second harmonic. When the output circuit was tuned to this double frequency, the rejection of the fundamental was enough to provide reasonable efficiency at the high frequency. Results from this system were comparable to those of the Goldschmidt alternator.

Fessenden was certain that his alternator had the potential to exceed the performances of the competitive systems. He needed

(Continued on Page 20)

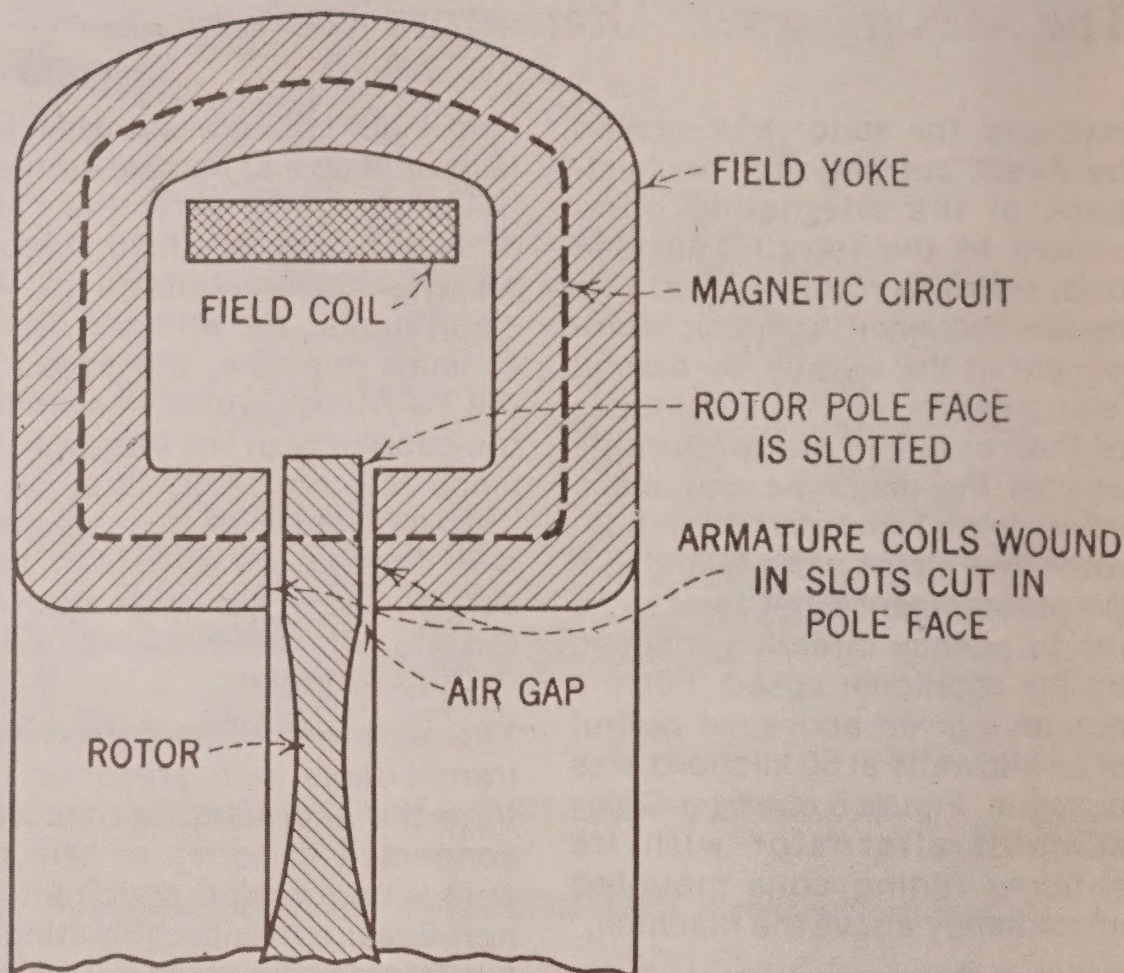


Figure 7: A SKETCH OF THE ALEXANDERSON INDUCTORS

The Alexanderson Alternators *(Continued from Page 19)*

a manufacturing facility to make operating samples and chose General Electric. After some differences of view about the presence of iron in the alternator, a series of machines was constructed by Ernst Alexanderson. (Fessenden felt, perhaps on the basis of Lamme's work, that the characteristics of iron would not accommodate the high frequency he sought while Alexanderson, backed by Charles Steinmetz felt that iron could be made that would provide exactly what was required). The central part of the design was the rotor, a flat-edged disk whose outer periphery was

pierced to provide an iron-free series of radial slots.

When rotor moved, its the slots around its outer annulus slots passed between the slots around the periphery of the stator. Each pole-piece with its adjacent slots was arranged in an inverted "U", with coils imbedded in the grooves cut in the legs of the "U" (Figure 7). The entire stator was magnetized by a direct-current-field produced by an annular coil located in the curve of the "U" and going around the inside of the entire stator. The coils experienced a

(Continued on Page 21)

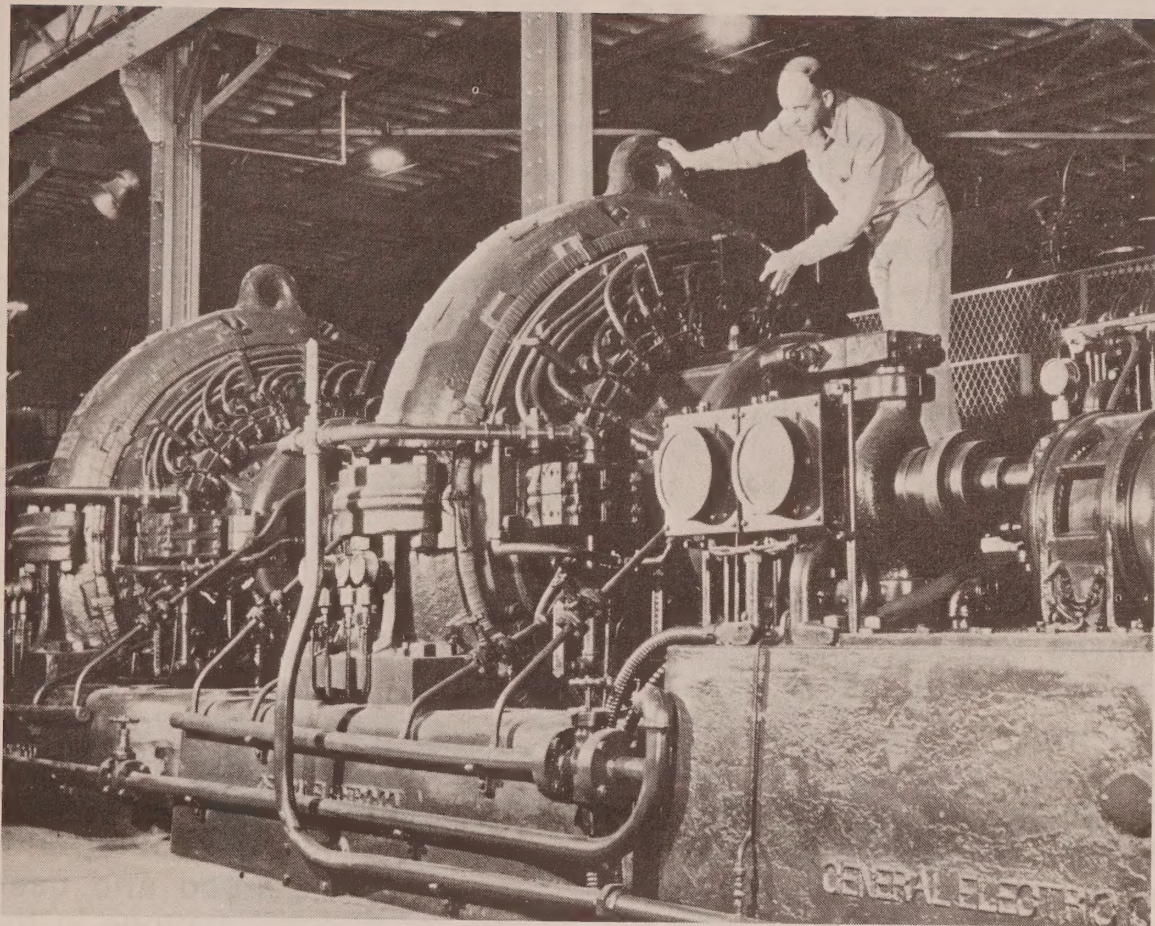


Figure 8: THE ALEXANDERSON ALTERNATORS AT ROCKY POINT

The Alexanderson Alternators *(Continued from Page 20)*

change in magnetism as the slots in the rotor passed thru the slots of the closed ends of the "U".

(The author is impelled to make a comment here that has little to do with the Alexanderson but does say something about GE. The principle of the GE Reluctance Pickup, a much touted high-fidelity record-groove-to-electricity transducer produced sixty years later, is identical to that of the Alexanderson. It suggests that a good idea is timeless, especially if it is applicable to the production of profit).

The slots of the German alternators were cut in the peripheries of their rotors, parallel to the axis of rotation. The slots of the

Fessenden/Alexanderson machines were cut along radii in the rotors, perpendicular to the axis of rotation. A remarkable feature of the Alexanderson designs is the way the problem of air-resistance in the slots was solved. Fessenden originally wanted wood included in the rotor so as to present a smooth high speed surface. Wood could not be retained in the iron rotor slots (centrifugal forces were far above the strength of wood) so Alexanderson used bronze which was bonded intimately to the rotor and machined smooth with the rotor surfaces in the final shaping and polishing.

(Continued on Page 22)

The Alexanderson Alternators *(Continued from Page 21)*

The peripheral speed of the larger Alexandersons was just below the speed of sound. Any irregularity generated a shock wave which increased the windage force beyond the capacity of the driving motor and worse, beyond the strength to withstand the extra load. Experience with the rotors revealed that they were self-polishing in service which strongly suggests that the sound (shock) waves removed the minor marks left by the machining process.

Alternators were produced by GE in sizes from 2 kilowatts (initially) to 50 kilowatts in 1917 when the Navy installed one of these machines in the old American Marconi station in New Brunswick. The machine was entirely satisfactory providing service equal to the best arcs of that time. Development on the alternators continued until the biggest machine, 200 kilowatts, was produced in 1918 and sent to New Brunswick to operate with the smaller one.

Alexanderson alternators figured centrally in the process that convinced British Marconi to sell its stock in American Marconi to General Electric Company. British Marconi had made overtures toward buying enough alternators to equip its major stations throughout the world. The Navy executives suggested that for reasons arising from national interest that GE should not support that transaction. Since positive action along these lines was not possible for the Navy and since their wishes were critical,

GE found a way to satisfy(?) all parties by offering to set up a new American company and to transfer all its expected holdings of American Marconi (when purchased from British Marconi) into the new company. The deal was approved and the Radio Corporation of America was born. At the same time British Marconi was able to buy Alexandersons for its own use.

Two of the 200 kilowatt Alexanderson alternators went to RCA at Rocky Point. (Figure 8 show them with their operator). Their story is told in the accompanying article about Radio Central. RCA bought nearly all the other units that were produced and used them in its other stations in the United States and Hawaii. For a good picture of where all of them went see "Wireless Communication in the United State" by Thorn Mayes.

Report From Radio Central

(Continued from Page 12)

had a receiving facility similar to that at Riverhead which gave RCA a choice of stations when conditions favored one over the other.

Editor's Note: In the next issue of the Gazette we will carry on the story of Radio Central and include more detailed material about the later receivers, antennas and transmitters that were used at Riverhead and Rocky Point. More important, we will describe the Teletype facilities that made traffic handling almost automatic.

REFLECTIONS ON 40 YEARS OF WEDDED BLISS



BARB & JIM RANKIN **NOV. 22, 1991**
(OUR SECRETARIES)

THINGS THAT MAKE A HAPPY MARRIAGE:

- Continuing commitment, based on a firm conviction that marriage is forever
- Willingness to do more than your share - if each partner contributes 75%, you have 50% more than you can ever use
- Falling in love many times - with the same person
- Children, grandchildren, family & friends to love and to love you

Radio: As I Experienced It

CHAPTER 12

By Bill Hoy

Until 1936, it was next to impossible for a man over forty to obtain work, or to keep the job he had already. Long before a man was fifty he had to consider the possibility of his children providing for his living in later years. His alternative; move to the closest "Poorhouse". Roosevelt changed all that with the Social Security Act he signed on August 14, 1935. I believe that act did more to repeatedly re-elect Roosevelt than all his speeches. A presidential candidate had once used a slogan, "A chicken in every pot", in his campaign. Now, it seems, "A car in every garage; a radio in every car", could have been Roosevelt's slogan. He was reelected, in 1936; by a majority of all but eight electoral votes.

A RADIO IN EVERY CAR

I have written, in a previous article, about auto-radios, and their problems with antennas. The 1934 car designs increased those problems. Almost all new cars had all-metal bodies; most had body and top in one piece. Gone were the running-boards to carry the antenna on their bottom, this led, after trying several other less than great solutions, to the vertical antennas still used today. It would be several years before there was much further improvement in auto-radios.

A plus for everybody; cars were being assembled, finally, to co-exist with built-in radios. The car-makers had decided to include good radio sets as an option in their new cars. Some makers, of course, had done that already. Now, as far as I know, all cars did so. Car manufacturers have always provided for all options when each car is assembled, if a radio is an option, all wiring needed for a radio is installed during assembly. Filters to prevent ignition, and other electrical noise, are built in, larger generators and batteries are provided, if needed. If a radio is ordered, only one piece of sheet-metal needs to be altered to accommodate the radio. This made it duck-soup to install any radio in any car that did not have one from the factory. I had many jobs installing and repairing auto-sets, and Stewart Warner "South Wind" gasoline operated car heaters. I was "South Wind" dealer for as long as they were available. "South Winds" were the only way to obtain adequate heat in the cars of that time, because thermostats on the cars of the day had to maintain the engine water-temperature low enough to avoid boiling away the alcohol-anti-freeze then commonly used. I know—the coolant in my car froze, and cracked the engine-block, when too much alcohol boiled away.

On New Years Day, 1936, my auto-radio repair-shop was destroyed by fire. As I have written before, my shop was located in a building formerly used to store ice for the one local general store. The fire began in the store and jumped to my shop. An electrician, Dennis Mathews, who was one of my best friends, lost his life in the fire. Two other friends sacrificed their lives trying to save Dennis. I lost all the equipment and stock in the shop, as well as several costly radios, including my Scott All Wave 15. I was still using the two rooms of my father's house as a part of my shop. I put up a small building behind that house, for added shop-room. A corrugated metal two-car garage building was rented for auto-radio work. I can assure you that my car-shop was cold in winter. Car-radio work, though, was very slow in winter. Most cars still had no heaters and were little used in our cold weather. Many owners waited until early spring to purchase car licenses; that saved them a quarter of their annual fee. Car-heaters first became common in 1937, in our area.

WINDS OF WAR

Since 1932, Japan had been engaged in aggression in Asia; everyone had read accounts of "bug-eyed" Japanese in large eye-glasses riding aerial bombs to the target, and their death, because Japanese air force bomb-sights were so inaccurate. People were talking about the possibility we might be involved, too. All laughed at any suggestion Japan could present any problem in a fight. Almost everyone was

sure Hitler's Germany would be a real problem, but for Europe, and not for us. After all, they said, we were too isolated by the ocean between to have any worry.

In 1937, W. B. Uhrling, the owner and manager of the Southern division of the theater-chain for whom I was doing repair-work, visited my shop. Uhrling was from Germany, himself, and had returned to his German home-town once a year. He had just returned, early, from his annual visit. When we commented on his quick return, he told us a story we just could not believe. Uhrling said he kissed his sister goodbye and told her he would never return to Germany again, after seeing what life was like in his own home-town. He told of people being arrested and beaten because they were Jews, as I believe Mr. Uhrling was. He told of people not trusting their own next-door neighbors, "They are all goose-stepping snitches; your own child will turn you in to the Gestapo", he said. He told us no German was permitted to fraternize with Jews, and even approved Germans were not allowed to visit after dark. He said his sisters home was raided by a group of soldiers, after she invited next-door neighbors over so she and her husband could have a bridge game. He said the soldiers (probably just police), roughed up everyone, and told the neighbors to be very sure they did not do that again. Remember, this was early 1937. Uhrling was a friend for the rest of his life. I am not aware that he ever went back to Germany again.

(Continued on Page 46)

Hawaii Chapter News



EIMAC TX TUBE — CHUNG COLLECTION

This is a last quarter report of the activities of the Hawaii Chapter. The purpose of the Hawaii Chapter is to Preserve and Present the History of Radio and The History of Broadcasting in Hawaii. The enclosed pictures and the VHS tape are the fruits of our endeavors to live up to our purpose. The Hawaii Chapter proudly proclaim ARCA as the parent of all our endeavors.

The enclosed pictures are numbered and captioned on the back of each picture. The first group of pictures are of a display that we helped to create for "Hawaiian Radio" KCCN. KCCN has had an all Hawaiian music format since its first broadcast. The next group of pictures help Hawaii Public Radio to celebrate its 10th Anniversary. The VHS is a production of Hawaii Public Television and depicts "Remember Pearl Harbor" through the eyes of local literary artists of Japanese ancestry who lived through that sad and tragic

event in history. My own parents lived through the war as teenagers, and remember vividly the bombing by the Japanese. My Chinese grandfather was a janitor and firefighter at the time of the attack. He suffered lung damage while fighting fires during the attack, and died years later just before I was born. My mother is of Okinawan ancestry and remembers the prejudice she endured even though Okinawans are not Japanese, but look similar. The production is done a lot in the language of the local people of that time and so may be hard to understand. ARCA is recognized in the title credits.

There are many activities planned for 1992 that will greatly expand our horizons. We are working at present on the History of Television Broadcasting in Hawaii. We are in the process of creating a video of that history.

Leonard Chung, President
Hawaii Chapter



**LEONARD
CHUNG,
ARCA
HAWAII
PRESIDENT,
WEARING
HIS ARCA
T-SHIRT.**

**MARK
McKEAGUE
(Back View)
RADIO
DISPLAY
SET-UP.**



**BAND
STAGE.
MARINE
CORP.
BAND
PLAYED
RENOWN
FOR THEIR
"BIG BAND"
SOUND AND
SELECTIONS.**

Reported Auction Prices – the Myth!

by Jim Clark

While attending a local antique radio swap meet recently, I noticed that one of the club members had for sale a nice Pepsi Drink Dispenser novelty transistor radio, complete with its carrying strap. Since it was not marked, I inquired as to the price of his offering, and was told \$300. He went on to tell me about how one of these beauties was sold at auction a couple of years ago for \$1300, and thus what a bargain his set was! As proof, he had a copy of Breed's novelty transistor radio book in which a \$1300 sale is reported, citing an article in the January 1989 issue of *Antique Radio Classified*. He was showing this reference to everyone who inquired about his Pepsi radio. Haven't we all heard other collectors and dealers referring to that famous \$1300 Pepsi Radio sale?!

When that \$1300 sale was first reported in *ARC*, I was so shocked that I called the author to investigate. I suspected that some unusual circumstances must have led to this record sale. I was thus startled when the author told me that the Pepsi radio did NOT sell for \$1300, but actually was sold for between \$200 and \$300! He went on to explain that the erroneous report of the sale price resulted from some confusion involving absentee bidding either just before, or just after, the actual sale. For whatever reasons, a correction was never printed, and the myth of the \$1300 Pepsi tran-

sistor radio sale has been allowed not only to grow, but to prosper!

I have noted many other errors in the reporting of auction sale prices of antique radios. I suspect that, oftentimes, a self-appointed reporter decides that he or she will be of service to our hobby by recording the sale price of each item at an auction, and then presenting this information for publication. However, this practice can result in many inaccuracies. How? you may ask. Well, what usually gets reported are the APPARENT final sale prices of many items. The problem is that some of these transactions are actually no-sales or buy-backs!! The casual observer in the audience would rarely know this. For example, a Stellar Mantle-Maris Baseball radio was reported to have sold at Radiofest '91 for \$700. In this case, it was bought back by its owner (perfectly allowable under the auction rules) and thus did not actually change hands. Is it accurate to report this as a sale? (An owner will sometimes try to bid up the price of an item; if nobody bids higher, he "buys it back" and tries again later.)

In another auction where it was permissible to bid on your own items, I recall that a Smokerette radio sold for \$125 and, yes, it did change hands. (I know, because I sold it and I did not buy it back or bid on it!) Later at the same auction I was surprised to see another Smokerette radio in

(Continued on Page 47)

My Electronic Coming of Age

David W. Kraeuter

Crystal set — those are the first words many think of when they try to discover the roots of their interest in old radios and electronics. I am no exception. My crystal set, built from a kit, was primitive even by 20s standards. Still in all it worked, though certainly not to my satisfaction. I remember a coil, a couple of flat metal springs, an unmounted crystal, a few fahnestock clips, and a pair of headphones. I was on my own for an antenna and ground. I think the pre-wound coil had to have the lacquer sanded off it for one of the flat springs to make contact. I put everything on a piece of wood about 8"x8"x1½". With a 15-foot-high 40-foot-long antenna it got only KDKA and one other station simultaneously, the action of the adjustable spring having little effect on sensitivity or selectivity. Nor was the reception improved when the antenna was extended another 40 feet in length.

I remember later installing an on/off switch on the set (so as not to wear out the crystal)—a 120 volt wall switch that I cut an opening for in the wood chassis. I wired the switch in series with the antenna. I had that crystal set for so long; then one day somehow it disappeared. I'd give anything to see it now. I kept the crystal even longer, but somewhere over the years it was lost, given away, or forgotten.

Then I graduated to my first "real" kit sometime in the early 50s. It

was called something like a 19-in-one experimenter's kit. I built a front panel for it in wood shop at school—yellow pine, stained and varnished to the teeth. I wish I still had that kit, too, but I think I traded it or sold it to what-was-his name in 8th grade. But while I had it I learned a lot of things. Basic stuff like, if you use acid core solder on your kit (I did) you soon have to take it all apart and re-solder it with rosin core solder. I remember two of the things I built with it—a Theremin that worked rather well, and a signal tracer that was less than successful. The "probe" for the signal tracer input was an eight-penny nail with a wire soldered to the head and electrical tape put over that to provide insulation. The first signal I tried to trace was from a five-tube AC set. The first tube socket pin I touched with the nail point must have been for a filament because the speaker on my new tracer let out a very loud buzz. I was happy the thing worked. Only later did I learn that you were supposed to hear the actual radio signal on the tracer, not just a buzz.

The 19-in-one kit had a "hot" chassis, with one side of the AC line going directly to the chassis. To avoid electrical shock, you were supposed to connect the input probe of the kit to the chassis of the radio to be tested, *then* plug in both radio and kit. If the neon light on the panel of the kit lit up, you were supposed to

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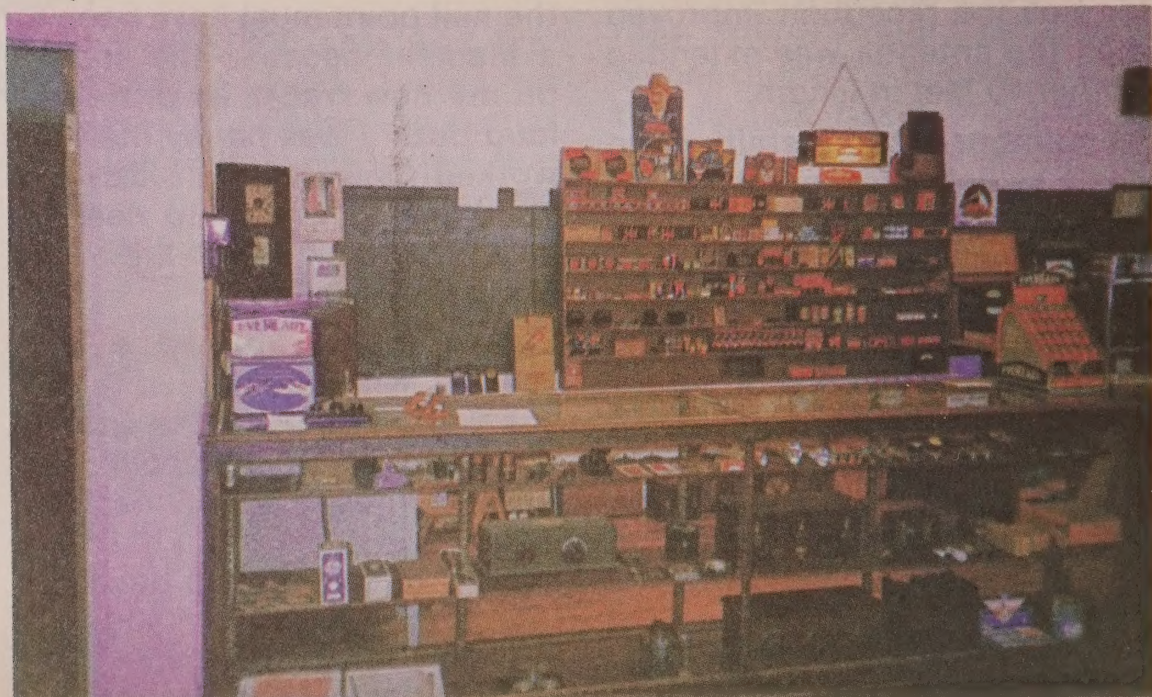
MUSEUM OF RADIO AND TECHNOLOGY INC.

A Gem In The Hills

By John Haught

Recently, my wife Sara and I had the rewarding pleasure of a guided tour through the Museum of Radio and Technology in Huntington, W. Va. I call this historic building with its growing contents of early radios, books, and associated equipment truly a "Gem in the Hills."

The opportunity for this visit was a meeting of the West Virginia Chapter of ARCA, which was held at the Museum. Since we are members of the Antique Radio Museum Foundation, we took advantage of the occasion to view firsthand what this small but dedicated group has accomp-



RADIO SERVICE SHOP AND STORE (circa late 20's)

A Gem In The Hills *(Continued from Page 30)*



RADIOS OF THE 20's ON DISPLAY IN THE MUSEUM



RADIOS DISPLAY (circa 40's)

(Continued on Page 32)

A Gem In The Hills (Continued from Page 31)

lished since acquisition of the property, just one year ago. We were greeted at the door with a friendly handshake from Geoff Bourne, President of the W. Va. Chapter; after being introduced to other members, including National President Lloyd McIntyre, our tour began.

First impression: The ambience of the interior of the building was overwhelming. Its first life as a schoolhouse, with its slate blackboards, bare wooden floors, and plastered walls, makes it ideally suited to its second life as a Radio Museum. The 1930s architecture sets the proper tone for what will become a tremendous asset to the early-radio historical community. Its location makes it easily accessible from anywhere in the eastern United States as well as most of the Midwest.

The first room we visited was already in use as a classroom, where Grace MacMillen was presenting a seminar on the restoration of a wooden-cabinet radio. No films or slides here — it was a real, live demonstration where each step was explained, and one could experience expertise and craftsmanship in action. The stately chalkboard at the front of the room was once again being proudly put to the use for which it was intended. Above the blackboard is an old commercial display comprising radio parts mounted on a schematic board — the type used for many years in our trade schools. I understand that this classroom will be used in the future for instruction in

radio theory. I couldn't help thinking what a pleasant room this would be for a continuing class in radio repair, from one of the old Radio Servicing correspondence schools.

The second stop on the tour was the "Lynch Radio Shop" — a room right out of the thirties. This room brought back memories from my youth when I would visit, almost daily, the radio repair shop located in the back corner of the General Store in our community. It was that shop which ignited my early interest in radio.

Inspection of this exhibit begins with the ranks of repaired radios along the back wall, and continues with the radios on the side wall, which are awaiting repair. After this comes the area that interests me most — the workbench behind the glass counter where the radios are actually repaired. Here are the instruments used by the early repairmen: A Supreme Model 500 tube tester (how many of these have you seen recently?); assorted hand tools; early voltmeters; and other instruments. Under the workbench is a box of old radio parts; old tubes and their cartons; headphones; IF cans; faulty parts removed from repaired radios — discarded but never thrown away! A fresh wave of nostalgia arises here at every step.

Immediately behind the glass counter (which is full of new or mint radio parts) is an old wooden desk with an antique typewriter. Also on the desk are

MINNESOTA MEET—NARC/AWA Friday-Saturday May 29-30, 1992

The Northland Antique Radio Club will present "Radio Daze '92" with AWA at the Seville Plaza Hotel, 8151 Bridge Rd., Bloomington, MN 55431. This two-day event will feature a swapmeet, radio contest, luncheon, auction, and tour of the Pavek Museum of Wonderful Wireless. Special attraction will be a guest appearance by noted collector and museum curator Ralph Williams. Pre-registration is \$7.00 for members and \$9.00 for non-members. Registration during the days of the event will be an additional \$2. For more information write NARC, P. O. Box 18362, Minneapolis, MN 55418, or call Don Hauff (612) 425-0089.

A Gem In The Hills (Continued from Page 32)

an ashtray in the shape of a Firestone rubber tire, and a rubber stamp holder from the early '30s.

On one wall is a very interesting item, a 3'x4' poster describing the Queens Variocoupler and giving you six reasons why you ought to buy it! We also noticed a Crosley Pup and an Atwater-Kent radio waiting for repair. We stood in amazement to think that all the parts, instruments and tools needed to repair these radios are here—all from the early '30s.

Also noted: an Eveready shipping box and lighted sign; an old wall telephone; a General Cement Dial Belt metal box, full of dial belts; and an Eveready/Raytheon tube display, in boxes.

Once again walking down the hallway (reminiscent of recess time in our school days) we enter the J. A. Moore Memorial Library. This room is full of radio reference books, magazines, and other related reference material. I could spend many hours in here just perusing the reference

material. It took me only a few minutes to find information I have been seeking on how to make a folding loop antenna (*Popular Mechanics*, November 1925).

The Display Room is next, with its many types of vintage radio sets on view. It reminds one of the displays in radio stores of 60 years ago. Other rooms visited were a room set aside for the recreation of an early amateur radio station, a workshop and restoration room, and an area which may become a Caretaker's Quarters. The tour ended in the spacious auditorium with elevated stage where auctions, contests, and other related activities are held.

As we drove back to Pennsylvania, we took back with us pleasant memories and a warm feeling of friendship with the members of ARCA and the West Virginia Chapter. We can truly recommend that you visit this "Gem in the Hills" and relive those nostalgic days of early radio.



CARTOON BY RON BOUCHER

MR. GRIDLEY

by Ron Boucher



Well, as you can see I've come up with a character and name for an ARCA comic strip. Mr. Gridley is a radio repairman from the old days. I think his era will be the late '30's. In coming up with a name for the ARCA strip I wanted something radio-ish. Gridley sounds a little like grid-leak. Best regards, Ron Boucher.

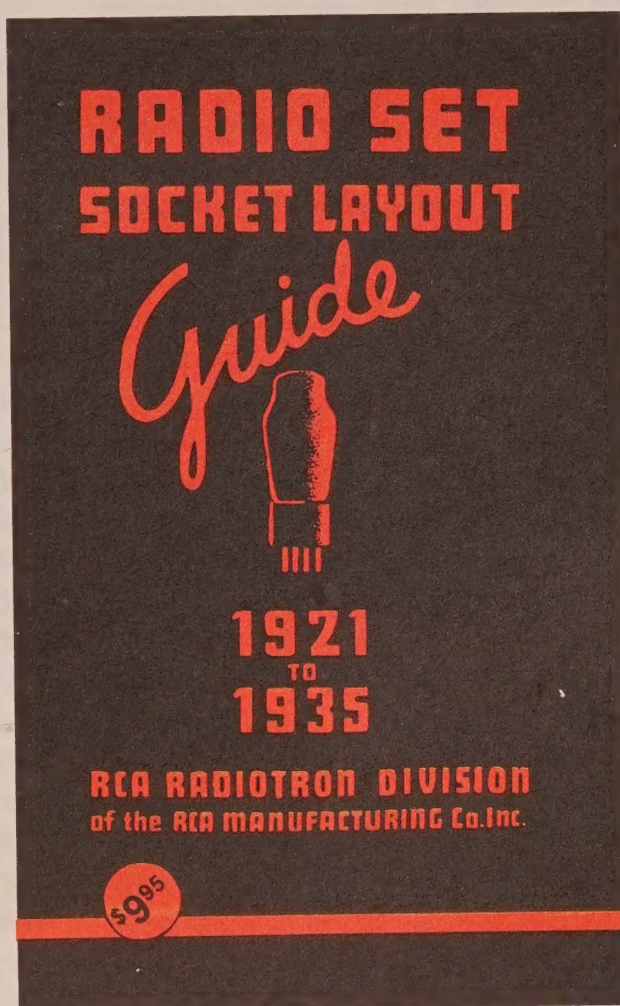
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Electronic Coming of Age *(Continued from Page 29)*

reverse the line cord of the radio before going on. How were they allowed to sell such junk back then? And how did I manage to live through it?

Actually my first introduction to the dangers of electricity wasn't with the 19-in-one kit at all. It was much earlier, when I was a very young child. I found myself alone one day in the bathroom playing with a hairpin I had found on the floor. I noticed that the hairpin had two prongs and that the electrical outlet on the wall had two openings that just about matched the prongs. A few moments of insight led me to my first electrical experiment, which had distinctly unpleasant results. I think a quick trip to the doctor's office ensued, but all I can remember about it now is that for months afterward whenever I went into that bathroom I refused to look at that electrical outlet. The incident quickly passed into family folklore.

I can remember quite well being severely shocked some years later. I was maybe ten or twelve. I was at church for practice on some play or pageant that was to be presented. While others were discussing the program I was standing on the floor heating register, and the public address microphone stood right in front of me. When I put my hand on the microphone stand I got such a shock I couldn't move. For some short time the electricity throbbed through me. When I finally somehow was able to let go of the stand I was in such shock that I

involuntarily came into contact with the stand again! To this day I remember very well the agony of those two shocks, and I detest and fear electrical shock. Perhaps that experience has made me exercise more caution in my electronics work over the years than I otherwise would have. (Nice to poke around inside a portable transistor radio knowing the highest EMF you'll encounter is nine volts.)

At around this time I had saved up enough money to buy a short wave radio kit—a Knight Ocean Hopper. And this time I was ready to do it right—no acid core solder. Nevertheless the kit soon had to be rebuilt because I had incorrectly mounted all the tube sockets on top of the chassis instead of underneath it. How I managed to get that set working with all the socket pins millimeters away from the edge of the chassis I don't know. But I took the few hours out to remount and rewire all the sockets as soon as my uncle pointed out my error. I took the set to eighth grade show-and-tell (though we didn't call it that then). Everyone got to come to the head of the classroom and listen to the headset for a few moments. The radio was able to hop oceans by dint of plugging in short wave coils. I think there were a total of four in all. As I got money for each one I would order it from Allied Radio in Chicago. What a bother my single coil orders must have been for the stockmen there.

(Continued on Page 37)

I was often out on the roof experimenting with antennas, trying to bring in anything so long as it was very far away. My uncle once suggested I try bedsprings for an antenna. The next time he visited me he took the time to explain that he didn't mean I should string them up out on the roof.

With all this experimenting and building it was inevitable that I would come to think that I could actually repair radios, too. I remember begging my father to lend me the money to buy a VTVM. It was something I needed to have "right now". He must have thought to himself, "A VTVM! Why did I have to have a kid who wants a VTVM? Why couldn't he just want a football like any other kid? What is a VTVM anyhow?" Saving or pleading or begging or borrowing must eventually have worked, because in time I got the kit and built it almost overnight. How happy I was with it! I still have it today. I'll always have it.

I measured voltage everywhere. I think I even got brave enough to measure the voltage in the bathroom. I can remember trying to measure the signal voltage on my outside long-wire antenna and thinking that either there wasn't any there or, if there was, it wasn't important.

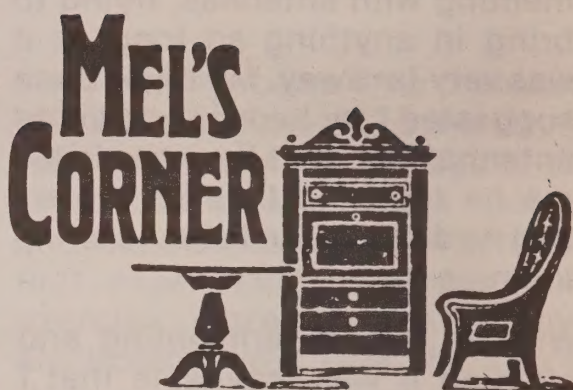
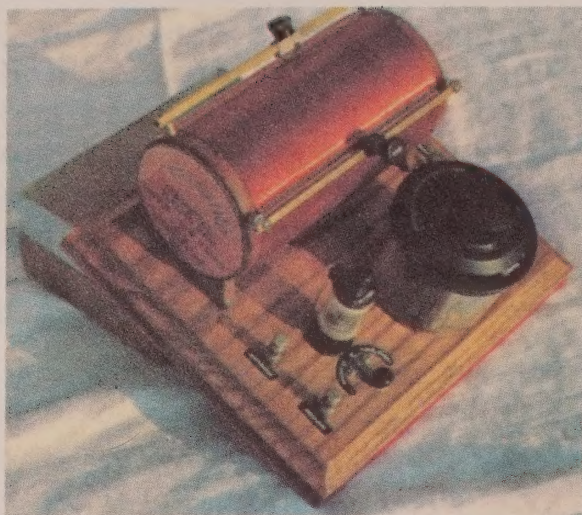
Over the next few years I learned many lessons in electronics haphazardly and through my mistakes. I'd like to see, all lined up in a row, all the radio and electronic chassis I poked into as a kid, trying to figure out how they worked. Very near the beginning of the line would be that radio I found down in old

Johnny Johnson's rubbish dump. The chassis was crushed and filled with mud, the tubes and cabinet were gone, and there was no speaker—but it was all mine. All it needed to get working again was . . . I think it eventually went back to the dump.

As did some other radios that shouldn't have. The radio type conspicuously missing from my collection of antique radios today is a cathedral. I had one once. It was a classic. Unfortunately I acquired it too early. I got it when I was a young teen-ager and it was just an old radio. It didn't work and I didn't know how to make it work so I tore it apart. No one would ever want an old radio that didn't work. I threw the knobs away, I threw the cabinet away, I threw the chassis away, I threw the tubes away. I kept the nice brown paper capacitors in case I'd ever need them for a project in the future.

Eventually I went to college and when I did I was able to state unhesitatingly that my major was electrical engineering. But somewhere during my freshman year something changed, causing me to want to look inward more than outward. I wound up as an English major. (So that's where we all came from!) After graduation my career took me away from electronics. I remember once seeing a schematic for a piece of electronic equipment in which many of the wires terminated at a big empty rectangle on the paper. It was something called an integrated circuit. Well that did it for me. My interest in electronics became dormant. It

(Continued on Page 47)



Sometimes collectors, looking over their collections, reach the point of boiling them down a bit. The question arises—which are the ones that interest me most? Did I ever envy them in early days? Did I ever use them or see my family with them? Can I part with them? A tough decision to make at that point.

Thinking back at what you have disposed of before—why did I trade, sell and dispose of those former items? Were they common items readily available then? Are they becoming rare items now?

With the ever increasing number of radio collectors recently, what was considered “common” items are now becoming hard to find—even rare.

Let's consider examples like Westinghouse RC's, Radiola Snr's, Aeriola Jr's—all great sets of note in their early days. Not far back, it was little trouble to find a good one in reasonable condition at low cost. They were considered “common” then! Today, try to find one all complete—working order-original.

Makes you think twice on the scroggy ones that show up needing restorations. Sure it's fun if

you can locate the necessary parts to go with them. We even find fellows making up replica parts.

Early-vintage-radios are increasingly becoming scarce as you look around the markets. Plastics and cathedrals now are in! Generations change their views of what is seen as being collectible. The history and background of vintage radios and equipment are more important to true collectors. A number of those we see at radio meets, mostly dealers, have scant knowledge or background information of what they are selling.

Inflation takes hold. What is deemed to be rare often depends on how well the buyer is acquainted with its history. A true collector is fascinated with all the old books and magazines as they reveal the progress of wireless and radio through many years.

A case in point comes from an old friend, Carmen Ambroggio, who is now retired and living in California. Carmen, at one point, had a very desirable rare collection of early vintage wireless equipment. On moving to the

(Continued on Page 39)

Mel's Corner *(Continued from Page 38)*

West Coast he reached that point of "boiling down" in shipping everything out there. Boil down he did and now with great regrets!

Being an old Ham operator of many years, his family was very well acquainted with his interests and time spent in that direction, a hobby they knew would endure. Now, with most of that equipment gone, he thought as a remembrance to his daughter and family, why not give them a working old time Crystal set, the type and size he once made in his early days. Looking around, he could find none desirable or interesting that worked. So what? Make one! So he did!

A conventional double slide tuner was wound with crystal detector and ear phones, all in early bread-board design. Then to make this a simple usable every day radio for the family, a small amplifier transistor was added under the baseboard of the set.

This amplifier provided the means for a small horn speaker to be used, all in conformance with an old time Crystal receiver appearance. A small switch on top-side of the set provided means to fiddle around the crystal detector cat's whisker, or swing over to the amplifier unit and speaker!

What fun it is to tune in local stations by means of the old style slide tuner wired across a mounted variable condenser. Nostalgia at its best! Visitors are amazed at the results!

The set incidentally has been donated to Carmen's daughter

Trisha, dutifully inscribed from her father!

It has been interesting to note, at several meets, the appearance of a few antique sets with transistor modifications. This requires only a concealed nine volt battery to operate—without antenna and external power supplies. There are various means of doing this. Some use all the original panel controls such as tuners, rheostats, jacks, etc.—being careful not to upset the original inside configuration. Others have come up with special tubes with a transistor implant. Some tear up a cheap Radio Shack compact transistor set (ten bucks) to use components therefrom.

Who knows what comes next. A while back some AC powered Cathedral sets showed up attempting to give the appearance of an Antique Radio set. I have yet to see any of our antique collectors having one of these setting right next to their collections:

Going back to Carmen's set—here is one with a simple AMPLIFIER under the base that still tunes with an old style slide tuner and crystal detector now serving as a current household receiver! No AC line current wires—no external power supplies—just one little transistor battery!

It's time we got to winding a slide tuner again—a chunk of galena and who knows what we will come up with! It's worth a try!

CHEERIO! Mel

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Cleveland, Ohio 44111
(216) 671-6712

NEWS FROM WEST VIRGINIA

By Zane W. Parsons

West Virginia welcomes everyone to 1992. The winter has been pretty quiet here, not a lot of RADIO ACTIVITY going on. A hearty welcome aboard to the Hawaii Chapter. From all indications, it seems the chapter is composed of an energetic and hardworking membership. They certainly look good. Congratulations to you and we wish you continued good luck.

It looks as if we may soon be graced by additional chapters. It is encouraging to see a steady growth trend in ARCA membership and also see new chapters being established.

Progress is continuing at the Museum of Radio and Technology, though naturally, the cold weather has slowed things a bit.

The local community is just beginning to become aware of the Museum. We held open house every weekend in January, and ARCA gained membership as a result. So far, we have been relying on word of mouth and free media publicity. The local PBS television station was kind enough to make an announcement on behalf of the Museum at the close of its airing of Ken Burns' *Empire of the Air*. We wish to extend our deepest appreciation and thanks to Carol Brodtrick and the staff at WPHY Ch. 33.

We plan to open the Museum on a regular Fri.-Sat.-Sun. schedule starting March 6th. the City of Huntington's Traffic Engineer is

now working on permanent signs routing traffic from I-64 to the Museum.

The December 7th open house was real dandy. Turn out was good and the auction was a complete sell out. Prices were good and interest was great. We wish to thank all who attended our open house meets during 1991. We had quite a few out of state guests. That's all for now, looking forward to seeing many of you in 1992.

Footnote—Just received word that a new chapter has been approved. John and Linda Gramm have worked hard toward John obtaining this charter at Campbell Hall, New York. Nice way to start a new year. Congratulations. Z.W.P.

SPECIAL NOTICE

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INTERESTED IN
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PLEASE DROP A NOTE TO:

John Haught
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Aliquippa, PA 15001

Kentucky Chapter/ARCA

1907 Lynn Lea Road • Louisville, Kentucky 40216-2836

The following update is reported by Robert Dickerson, President.

We are excited and happy to report that our chapter is growing and prospering. We are looking forward to the favorable response of the ARCA directors to present ARCA '93 in Louisville. This is, of course, the height of excitement for a club to be able to host a national convention with the credibility that ARCA carries.

We are continuously receiving quantities of parts and radio specimens for resale to raise funds. This is very encouraging to a new chapter. We have secured a storage facility to contain the equipment and will have a large yard sale in the spring so members can clean out their attics and garages and everyone will have an opportunity to look for some of those rare and much needed parts. We hope to

hold some mini-meets with some frequency. We are working on a test station to have on hand at our meets to be able to check tubes, speakers, transformers and even possibly hook up complete radios and try them.

This is something that is needed at a lot of larger conventions. This will cut down on the doubt one has when buying used parts, etc.

A few of the things that caught my eye in our storage facility were FADA, APEX SUPER 5, many good and carefully tested tubes, wood cabinet AC sets, AC/DC portables, some nice consoles - Philco 90, early Radiolas, etc. Should make for good spring housecleaning.

Good luck at the ARCA/PARS meet in Pittsburgh. Perhaps I will see you there.

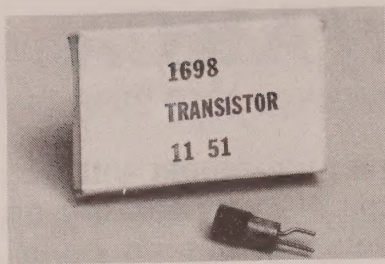
MEMBER LETTER

As a new member of ARCA I have been enjoying reading over back issues of the Gazette which brought back fond memories of my early ham days which led to a career as an electronic technician with the FAA.

In going over the Collector's Books in the Spring 1991 issue of the Gazette I ran across "*Vision by Radio*" by C. Francis Jenkins, which really excited me, and I am enclosing a check for \$11.45 for a copy if it is still available.

My dad Arthur J. Olmsted served as the Curator of Photography at the Smithsonian Institution from

1926 to 1947, and I spent many hours with him in his office in the old Arts & Industries building where he and Mr. Jenkins had many visits together. Also I had the pleasure of visiting Mr. Jenkins on several occasions at his laboratory which was on the second floor of a building on Connecticut Avenue just above DuPont Circle. As I remember it was over a Duesenberg automobile agency, and I always had to coax Dad to go in and see the famous Duesenberg cars that were on display. Harry H. Olmsted, 1025 Oakcrest Rd., Arlington, VA 22202.



TRANSISTOR TOPICS

The First General Electric Set, Model 675

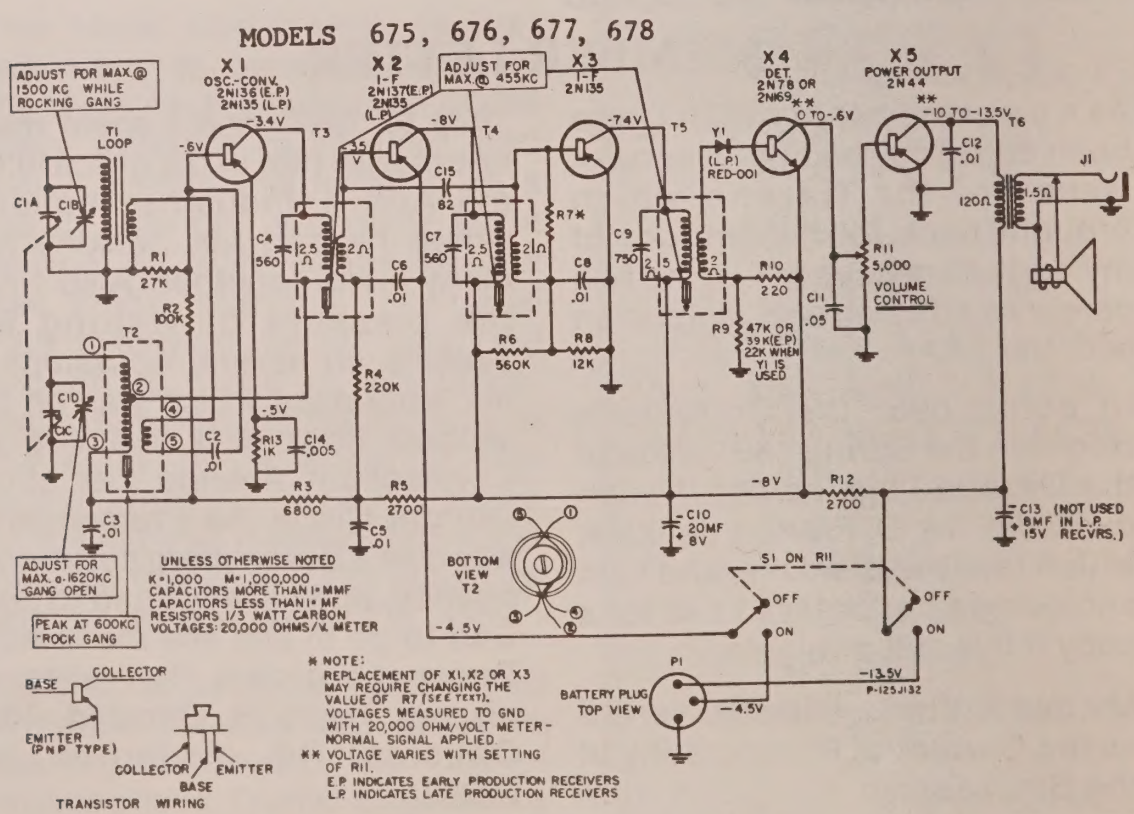
By Ross Smith

Mr. Robert C. Decker, Engineer with Thomson Consumer Electronics (G.E.), tells the story of the first commercially produced General Electric transistor radio set. The Model 675 was manufactured in 1955 and 1956 in G.E.'s plant at 1900 Bleeker Street Utica, N.Y. It is a five-transistor superheterodyne circuit using G.E.'s own transistors. It is a small set measuring 5½"x3"x1¾". Major components had to be "invented" along the way to achieve the miniaturization neces-

sary, as was the case with the Regency TR-1 and many others.

The set came in four color combinations, as Model 675 (black), Model 676 (Ivory), Model 677 (red) and Model 678 (Aqua). A special battery was used providing 13½ volts tapped at 4½ volts, Eveready #239 or Burgess #XX9. A DPST switch was used on the volume control in order to handle the dual voltage battery. Transistors used are 2N136 oscil-

(Continued on Page 45)



TRANSISTOR TOPICS *(cont.)*



lator converter, 2N137 first I. F. amplifier, 2N135 second I. F. amplifier, 2N78 driver and a 2N44 power output.

This set would be a very good collector's item, I only wish that I could find one!

One could make the special battery required from nine 1½ volt cells. The original price of the model 675 was \$49.95, same as the Regency TR-1.

Schematic and picture courtesy of Bill Morris, Carmel, IN and Robert Decker of Syracuse, NY.

MEMBER LETTER

HAWAII—WOW! Bet the vacationers won't miss this one in their travels. I knew darn well it was time for our famous ARCA patent lawyer—Bill Denk—to get started with his "AWA Review article." Then, here comes a great patent bibliography by David Kraeuter, who clarifies the modern names of all those old patent designations—which we pondered. "What was the guy actually describing in his patent?" The "Reflex article" by Ted Babcock, along with the explanatory wiring diagrams, brings light on doing more with fewer tubes involved.

It will be well worth the trip to ARCA Pittsburgh to see and hear Bruce Kelley present his program on Amateur Radio "the way it was 1910-1960." For those who never heard Kelley present one of his

many famous talks—they have something in store for them! He is usually the star of the show!

OK. With Bill Denk's and now my lens implants, we can now both see our ways to ARCA Pittsburgh for a most glorious time there!

The ads and "Mel's Corner" will be on the way early February. I hope I don't bore too many people with the ramblings of what I still cherish in my memories of the twenties and before.

Cheerio! Mel

1992 EVENTS CALENDAR

HVRA-AWA Houston Vintage Radio Association, Houston, Texas, May 8-10, 1992.

Radio: As I Experienced It *(Continued from Page 25)*

HOME RADIO SETS

Home radio-sets were being improved, too. Auto-radios always used a lower intermediate-frequency than home sets. That was done to improve their tuning stability. The lower frequency was always used, but never satisfactory. Designers found a way to manufacture more stable IF transformers. The economy-of-scale principle assured they would be used in home-sets too. At long last, the home radio did not require frequent re-alignment to perform correctly.

General Electric manufactured some very sensitive all-wave sets during this period. Their faults: their by-pass capacitors had too-low voltage ratings, and their power supply filter still used a liquid-electrolyte capacitor. The by-pass capacitors were blowing, one after the other, and the "wet" capacitors were prone to explode when the too-small vent became blocked. When they were in working-order, they were very good. When one of those sets came in for work for any reason, I would suggest that all those capacitors be replaced at a low cost. After that work, those sets were almost perfect. I was able to receive four Australian stations on a daily schedule, with a 1938 Model A-82 Sentry-Box equipped GE I had in my shop in 1949. Not even my Masterpiece could do that (Sorry, Lloyd). I do not know how they did it, but those GE's were so quiet, off-station, that one could neglect to turn them

off. I owned an RME amateur receiver at that time. Tuned off station in the same frequency area as the GE, the expensive RME made sounds like a jet plane. Another nice touch (copied later by National in their HRO 60), the GE sets had a long slide-rule dial. Each scale was printed along the length of a hollow plastic cylinder about one inch in diameter, and eight inches long, with the different scales spaced equally around the cylinder, which was rotated by the band-selector-knob so only the band in use was visible from the front of the set. The tuning-knob was two-speed, so tuning was a snap. All in all, one of the best operating home-sets, I always thought.

Another top-quality all-wave home-set of this period was the Philco Model 38-116, Code 121. That set, and the GE set, had, as they say, "Everything but hot and cold running water." I do not know of any complaint on the 37-116, unless it might be the tuning meter was sometimes ruined when a tube shorted. I can recommend either of these sets for a collection, especially the Philco, which had variable selectivity. I sold and installed many 116's for people who wanted to hear stations in their European home-nations which were being overrun by Hitler's troops.

Starting next month all articles can be furnished on computer disk along with hard copy.

MEMBER LETTER

Great new color production.

Glad to send in my extra \$2.00 for the extra postage.

Please encourage Dave Kraeuter to finish and publish his book on radio patents.

I loved that SW3 article too.

Fenton Wood KB5VQ
109 Shoreline Drive
Star Harbor
Malakoff, TX 75148-9613

Auction Prices

(Continued from Page 28)

similar condition bid to over \$300—only to be bought back by its owner! I assume that he had more in it than that, and only bid on it to protect his investment.

The reporting of auction sale prices could be improved if the auctioneer, or the organization sponsoring the auction, would provide a final listing of all items sold and the prices obtained for them, EXCLUDING no-sales and buy-backs.

The next time you decide to act as a reporter at an auction, make sure you KNOW whether or not you are getting the facts right! To do anything less is to do our hobby a great disservice!

Editors Note: You may also find yourself in some sticky legal problems if erroneous price reports can be traced back to you! People don't like to be taken in by faulty information, especially when it comes to parting with hard-earned money; and they don't care whether the inaccurate reporting was intentional or not. So beware!

Well you made it again! Another new exciting Gazette this time (color and all) with interesting articles! No wonder the list of NEW members is thus expanding!

It would take pages to comment on all the interesting articles in there. The WLW article was mind boggling! Larry Babcock dug out more details of the Titanic's fate, especially of what happened in the Radio shack!

Leave it to Rodney Schrock to stir up the interest on TESLA coils! Ouch! The article by Reno Ruggerie sure explains the details of the very famous SW-3! Just prior to this article—I have an unconfirmed hearing—that Reno is now a Silent-key.

Mike Feher takes the cake with that extremely *rare* jeweler's time set coming from J. Boudenein of Paris France. Rare it is! It now stirs me to come up with the details of the DeForest jeweler's time set—I have here in my collection.

Electronic Coming of Age

(Continued from Page 37)

wasn't until many years later that I casually took Heath courses in electronics and finally learned that although you can't measure signal voltage on your antenna with a VTVM it is there and it is important. I finally learned the principles of transistor operation, after having fixed transistor radios and stereos for years. It's amazing how much one can learn from a textbook, but it's even more amazing how much one can learn through curiosity and direct experience.

Video Tape Review

Reviewed by Bill Denk

PHILCO - RADIO IN ITS FORMATIVE YEARS, THEIR STORY OF RADIO MANUFACTURING IN THE ROARING TWENTIES.

Supplier: Vestal Press, P. O. Box 97, 320 N. Jensen Road, Vestal, NY 13851.

Price: \$19.95 plus \$3.50 S&H.

For this largely B&W, 28 minute video tape (VHS), we appear to be indebted to the old Philadelphia Storage Battery Company (Philco's parent company) for some interesting motion picture footage, filmed in 1929, of that company's factory production. The tape provides some fairly detailed, step-by-step coverage of how radios were made at that time. Presumably, the original film was used by Philco at its first dealer conventions. By 1932 Philco had become the leading manufacturer of radios and remained so for many years. The tape includes reference to early financial problems; bear in mind that Philco had hardly gotten started when the Great Depression struck.

The tape includes a special tribute to singer Jessica Dragonette, known then as the "Queen of Radio". She was a member of the NBC galaxy of performers, and was heard regularly during the "Philco Hour of Light Opera".

The tape opens with some shots, taken in radio studios, of such personalities as Bing Crosby, Rudy Valee, and Jessica Dragonette performing in "The Philco Hour" and "Philco Radio Time".

Production coverage starts with manufacture of the four-gang tuning condenser unit—the stamping out of the tuning condenser plates, tuning condenser assembly, four-gang condenser and tuning dial assembly, and tracking test. Thence to chassis stamping and forming, and tube socket wiring and soldering. There are many views of production on the moving assembly line, with views of Philco's use of overhead conveyers. Judging from the tape's spoken text, this reviewer assumes that much or all of the voice-over was added recently in the preparation of this video tape.

In 1929, Philco manufactured all or most of its components—even wiring harnesses, coils, nuts and bolts! There are interesting views of fixed capacitor production, with aluminum-foil winding and testing. Footage is also devoted to the manufacture and testing of Philco's first electrodynamic loud speakers.

Furniture production is covered, from turning of console legs, to gluing, assembly and clamping, staining, lacquering and rubbing. Thence to chassis and speaker installation and final test. The Model 95 Highboy is one of the cabinets featured.

Finally, there follows some recent footage of the hobby of antique radio collecting. The tape's trailer lists Dennis Atkinson as writer and producer, with thanks to Alan Douglas, Douglas Huston and Lawrence Leuchterlein.

BOOK REVIEW

"RADIO MANUFACTURERS OF THE 1920's. In three volumes, covering A-C Dayton to Zenith.

By Alan Douglas. Total pages: 300.

With the welcome appearance in late 1991 of Volume 3, this monumental work of ARCA member Alan Douglas is complete. Borrowing from what this reviewer wrote following the appearance in 1988 of Volume 1, if one were required to produce a one-word review of the entire three-volume set, that one word might well be "WOW"! This is indeed an awesome contribution to the literature of that most exciting period—the first decade of the radio broadcast era.

In these volumes, Alan aimed to describe and illustrate "every advertised model of each company, whether common or scarce, collectible or not." Clearly he succeeded beyond any reasonable expectation. For those of us whose collections are centered on radio receivers of the 1920's, this set of books is truly essential to our libraries.

Volume 3 extends, alphabetically, from The Radio Corporation of America (pp 1-59) through Zenith (pp 246-278). One of the twenty-two manufacturers listed in this volume, but omitted from the table of contents, is Radio Shop/Echophone, covered on pages 60-67. One of its receivers appears to have been sold under the name "Meteor" by Sears Roebuck & Company. Radio Shop later was acquired by

William J. Halligan where it became the basis of Hallicrafters. For E. H. Scott enthusiasts, pages 68-79 will be of interest, though Scott's giant, chrome-plated chassis did not appear until the thirties.

One manufacturer, of whom this reviewer has no recollection whatsoever, is Slagle Radio Company of Fort Wayne, Indiana. Volume 3 covers Slagle in six pages.

The section of The Sparks-Withington Company, manufacturer of the Sparton line of receivers, was read with special interest by this reviewer who recalls so well repairing one of these TRF sets in the late twenties. Unlike the run-of-the-mill circuits of that period, which used cascaded RF stages with one tuned circuit per stage, the Sparton "Equasone" had a tunable band pass filter up front. That filter employed a four-gang tuning condenser with associated RF coils connected between the antenna and the receiver's multi-stage, untuned RF amplifier.

Congratulations, Alan, on a job beautifully done! We collectors appreciate it!

Book Review by Bill Denk, W3IGU

PITTSBURGH - Ladies bring your favorite collectable. A new program designed to show how you blend your hobby with your spouses. SEE PROGRAM.

Archaeologist Sees Portable Radio As Cultural Artifact In New UA Press Book

What kind of archaeologist would hang up his shovel and start digging into thrift shops and garage sales, for insights into who we are and how far we've come in the past hundred years?

The answer is one with fresh ideas and a willingness to risk the cocked eyebrows of his peers: Michael Brian Schiffer, author of "The Portable Radio in American Life." His new book melds scientific thought, breezy style, and hundreds of photographs into a resource for collectors, nostalgia buffs, and scholars of popular culture and technology.

"People think of archaeologists as digging up things from hundreds or thousands of years ago," says Schiffer. "It's just as exciting to work with relics from the 1920's or '30s—that way of life in America is as dead as the cultures of ancient Greece or Egypt." Throughout the book, he draws parallels between the evolution of portable radios and concurrent change in American society and culture.

Schiffer discusses how technology is affected by consumer

(Continued on Page 51)

Al's Radio Shop *(Continued from Page 3)*

As collectors, wouldn't we love to be able to step into this picture and help Al out by buying some of his radios. Just think of it. A model 447, brand new, in the box, with all the paperwork for \$74.50. We might change our minds though if we had to earn this money at 1934 wages.

I created **Al's Radio Shop** last summer and tried to put in as much authenticity as I could. I consulted with other collectors to make sure it was right.

I also added some personal touches. I used the names of my son, wife and daughter for the stores across the street. My mother's family had a '29 Chevy with the license plate number 944. My father's name is Al and he repaired radios and TV's when I was small. The address on the door is 269 and that was once our house number. I got my sister

into the painting with the clock... her birthday is 3/15.

An uncle passed away while I was making the painting and the tiny photo on the calendar is from a photo of him taken in the 30's with his hunting dog.

There are plans for other radio artwork. One I'm working on now may become the cover for an upcoming Philco book. After that I am planning one that takes place in the mid 30's but involves 1920's radios.

I spent about 200 hours creating Al's so until I get better at this, they won't be coming out too quickly. At the moment, I have ideas for three or four more.

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(Also available from

Museum of Radio & Technology)

New UA Press Book *(Continued from Page 50)*

preference and how a vision of the technologically possible—as expressed, for example, in science fiction—can become translated into a need, or cultural imperative, and thence into reality. He also examines the decline of U.S. supremacy in consumer electronics and reasons for the rise of Japan in this field.

"The Portable Radio in American Life" is the first volume in the new "Technology and Culture" series from the University of Arizona Press. Michael Schiffer is professor of anthropology at the UA. His book, \$45.00 clothbound, is available at booksellers and can be ordered from the UA Press, 1230 North Park, #102, Tucson, Arizona 85719.

UA Press: Mike, from the neck up you're definitely a scholar, and we know you're an archaeologist at the UA. Then we spot your L.L. Bean shirt and jeans and we see that you like to play as well as work. Is that how you look at your new book about portable radios—that it was fun to do?

Mike Schiffer: It was the most fun I have had in my professional life. People think of archaeologists as digging up things from hundreds or thousands of years ago. Well, it's just as exciting to work with relics from the 1920s and '30s—that way of life in America is as dead as the cultures of ancient Greece or Egypt.

UAP: But a radio—that's something most of us take for granted. It's a novel idea to think there are collectors of old radios just as

with postage stamps or baseball cards. How about you? Do you have a few?

MS: I have around 500. I started collecting just for the fun of it, until I began to realize there was an interesting book waiting to be written. Then I started haunting swap meets and yard sales and antique stores, to find as many different kinds as I could to illustrate the book. Now I'm focusing on pocket radios because I'm running out of space.

UAP: What sorts of radios are collectible? Are there models or years that are especially prized?

MS: Well, they first made boom boxes in the '20s, and one of the rare ones will go for as high as \$2000 if it's in good condition. The early transistors from the '50s are also in demand, and especially some that were solar powered. They might be worth several hundred dollars to a collector. The first shirt-pocket radio, the Belmont Boulevard from 1945, is quite valuable—at least \$1000. There are those models and about 400 others pictured and described in the book.

UAP: Then an old radio we might have up in the attic or down in the basement could be a treasure to a collector?

MS: Absolutely. Look for the name of Regency or Raytheon. A Regency radio is hot to a collector because they made the world's first transistor sets in 1954, but other Regencys are

(Continued on Page 52)

New UA Press Book *(Continued from Page 51)*

valuable, too. Raytheon makes Patriot missiles now, but they were second in making transistor radios in 1955 and those are sought after.

UAP: Your book will probably be on a lot of holiday gift lists this year—both to give and to receive. How many portable radio buffs are there in this country?

MS: The book will be something for buffs, definitely, and I'd guess there are somewhere between ten and twenty thousand of them. But to a degree we are all buffs—radios are everywhere. The book should be a nostalgia trip for older people who remember family evenings around the radio. And then there are the yuppies, like me, who wouldn't leave the house without a radio and rock 'n' roll when they were growing up.

UAP: You have said that tracing the history of the portable radio is like tracing the cultural history of this country, that it's really an exercise in archaeology. Could you give us an example of that?

MS: Entertainment: in the early days of radio, families would gather around and listen to programs together just as they had sung around the piano or read aloud to each other as a family. Now, we have transistors, we have Walkmans, we have pocket radios. Everyone is listening in his own little world. A thousand years from now, archaeologists will be sifting through our trash, and they might see personal radios as a symptom of the breakdown of the family unit, the social change in this country. Radios

might even be seen as a cause of it.

UAP: In the book, you talk about Japanese domination of the consumer electronics industry. Probably some people will be surprised to learn that 1980 was the last year a portable radio was manufactured in the United States.

MS: That's true. And homely as it is, the portable radio has a history that's like the rise and fall of American consumer electronics in general. The portable radio was the first instance where foreign interests cloned American technology, using much cheaper labor and parts, and then took over the market.

UAP: What does that mean, in dollars and cents?

MS: Americans spend more than \$10 billion annually on consumer electronics. Some of that would be spent at home if American manufacturers could be assured that new products would be protected by tariffs.

UAP: So good news, bad news—it sounds like there's a lot in your book, even for non-collectors who don't have radios spilling from every shelf in the house.

MS: And who knows? That old radio of Uncle Harry's you've been storing up in the attic might be a prize, and you'll be on your way to a serious collection.

This book is available from the Museum of Radio & Technology - \$45.00 hardback cover.

No Modern Junk For Me!

by Al Pugliese

I am 37 years old. However, unlike most fellows my age, I drive a 1954 Oldsmobile 98, use an RCA Radiola Model 17 as my daily radio, often let a player piano provide my entertainment in lieu of television, and only listen to "Hi-Fi" on my 1957-64 Fisher tube equipment. A few years ago, I wrote to the *Gazette*, indicating in my letter that my Radiola (complete with horn speaker and wire antenna) was my "normal" morning radio. To my surprise, mention of this was made (I think in Mel's column) in a kind of humorous way. If I remember correctly, Mel's seemingly amused comment was, "This guy listens to this radio every day!"

My reluctance to be "modern" has always made me seem a rather odd individual. What I perceive as a gross misunderstanding of my tastes arises from the fact that 90% of the members of the Oldsmobile Club are age 60 or more, and the same appears to be true of our Radio Club! You guys who are 60, 70, or more years old take these radios for granted, and look at them as keepsakes and reminders of the past. But what about the unfortunate guy like me, who was not around to enjoy these gems when they were new? I feel that I was born way too late (1954); but I still **want to enjoy** these wonderful radios and cars of a golden era that has passed, perhaps never to return. "Modern" junk is not for me. I want good American

craftsmanship. I want styling based on class and pride. I want radio knobs made of Bakelite, brass, or wood — not cheap injection-molded plastic. I want a car that **is a car** — not a miniature four-cylinder chatterbox made mostly of plastic.

As I said, the funny thing about being the way I am is that the older guys in my clubs think I am rather strange! Again, they **had** the privilege of owning a '40s or '50s car or a well-built golden-age radio when these things first appeared. Further, since these objects of my affection are not easily serviced by commercial repair facilities, I have become self-educated in old radios, player pianos, and old Oldsmobiles. In fact, I am the national advisor for the 1954 Oldsmobile, and a recognized Hydramatic transmission expert! After recently writing a three-part article on the Hydramatic for the National Antique Olds Club, I received a letter from a member who thought (based on my extensive knowledge of the car and its transmission) that I must be in my eighties!!!

I laugh at these perceptions. All you members must realize that it's younger guys like me that you must look to for the preservation of the existence and quality of an Old Car Club or an Antique Radio Club over the next 30 to 40 years. And also remember that members my age are "deprived children"

(Continued on Page 54)

President's Page

(Continued from Page 2)

ignition in your car to the VCR. We owe it all to radio and its offspring.

We have another great announcement to make and that is the addition of yet another chapter. By unanimous vote, the Board of Directors approved the *Hudson Valley Antique Radio & Phonograph Society*. We say **WELCOME**, and there cannot be enough said about the importance to the well-being of ARCA that its chapters play.

I will leave you now with my last remaining thought. A major percentage of corporations and organizations fail in their first year. 90% have failed at the end of 10 years, according to government figures, but to say you have survived and are doing well after 20 years is something to be really proud of! I take this personal opportunity to congratulate the past officers, Board of Directors and dedicated members on your 20th anniversary.

Let's all meet in Pittsburgh and blow out the candles!

No Modern Junk For Me (Continued from Page 53)

who never had the good fortune to be around in the 30's, 40's and 50's. (I realize that life wasn't always a "rose garden" during those years, but you get the point.)

My collection of Fisher stereo equipment now numbers well over 100 units. These will be just as rare and valuable one day as the 1920's radios are today. I do not collect any Fisher equipment made after 1971, owing to the obvious drop in quality. I keep in touch with Mr. Avery Fisher himself, who at age 86 is still just as intrigued with these things as he always was.

By the way, my profession is Assistant Vice President for a large international bank. But this is just my way of earning a living, to allow me to live in my happy world of quality products — those

which are considered "antiques" by the general population, but are considered very usable, quality products by me!

So, I will always listen to my "old" Radiola and DeWald, and watch my Philco Predicta TV; I will always drive my '54 Olds; and I will always enjoy my 1923 player piano. I wear a 1927 Bulova wristwatch and write with a 1924 Parker pen.

Some may call this eccentric, but I consider it **real living**. And, I would like to know how you other members, especially the younger ones, feel about my lifestyle. Please write me with your comments. My address is:

Al Pugliese
27 Daleham Street
Staten Island, NY 10308

I look forward to hearing from you, and all my best to you!

THE HALLICRAFTERS STORY

1933 — 1975

by Max de Henseler
HB9RS

Looking back to the past is often a symbol of decline. But at a time when American radio manufacturers have almost completely disappeared from the amateur radio world market, the mind seeks refuge in a glorious past.

Collectors have developed a deep nostalgia for the 'good old days', when the brand names of American manufacturers were household words for the amateur radio world community. The sky was the limit, and the conquest of the skywaves by "riding" or "defying" them was the "challenge" of the Hallicrafters.

This historical review was undertaken from an amateur radio and collector's point of view, and, accordingly, it covers the range of communications equipment that was used by amateur radio operators, mainly short wave communications receivers, main transmitters and transceivers. It is not intended to cover the whole production of the Hallicrafters Co., and dozens of models have intentionally been left out.

MAX DE HENSELER

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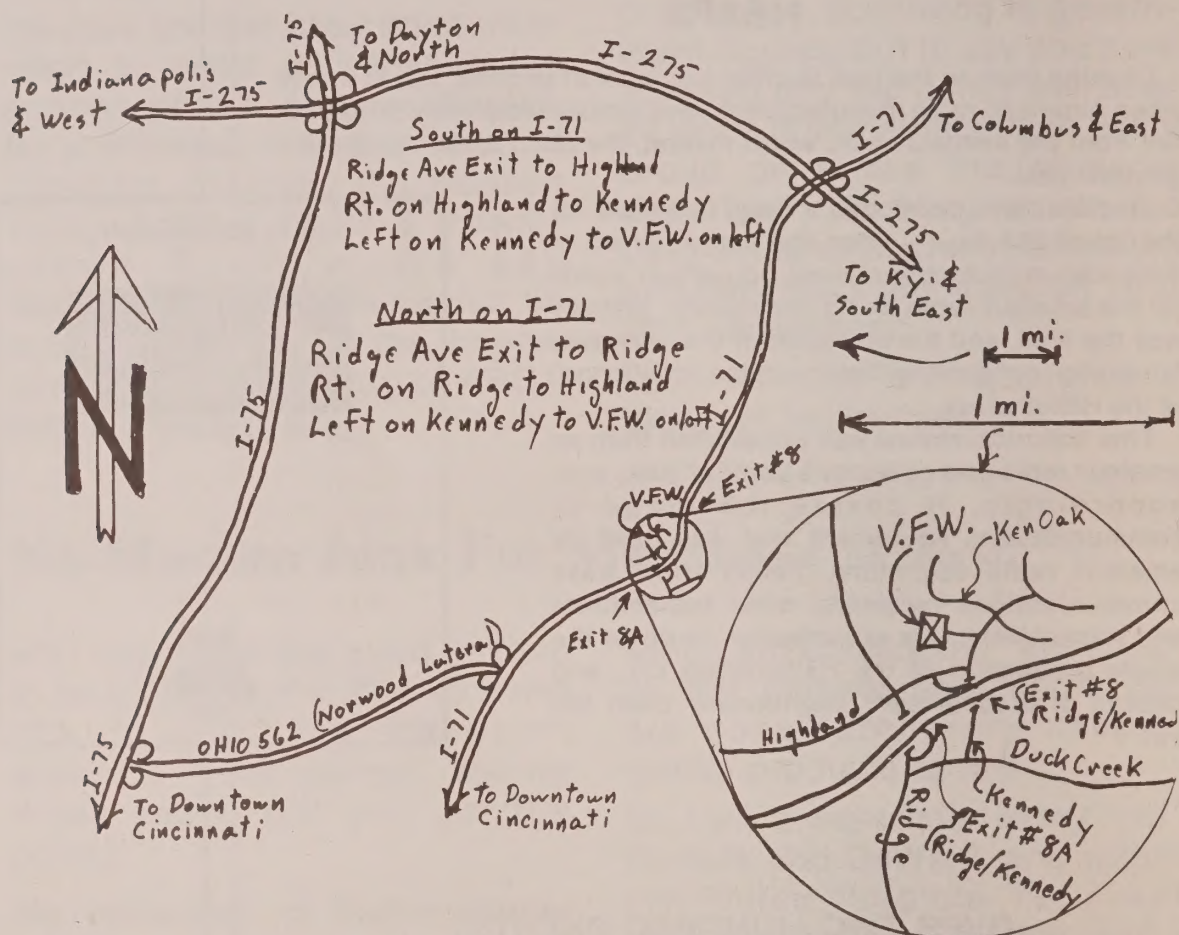
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Owing to time constraints, we cannot extensively proofread names, addresses, or numbers. If a mistake appears in your listing, please notify the GAZETTE and we will print a correction in the next available issue.

FOR SALE: Grille Cloth for 1930's radios. Send 29c LSASE for sample sheet with 8 great looking reproduction patterns usable in hundreds of table sets and consoles of the 1930's. all were designed from the original cloth used in these sets. More patterns on order. Michael Katz, 3987 Daleview Avenue, Seaford, NY 11783. 516-781-6202 (eves.). See Vol. 19, Fall 91 #3 for full page ad.

WANTED: Am Restoring a Paragon 2-5-U transmitter. Does anyone have a Pacent #577 bypass condenser for it? Cap. .01 or .02 MFD — but any size would be OK — along same lines. Ralph Thorn, 61 Maple Place, Huntington, New York 11743.

WANTED: Federal #31 2nd RF coil for Federal 61. Any coil winding on this coil? Federal Headphones. Copies of owners manual and schematic for Tuska 225 — single panel. Bill Noro, 126 Evaline Street, Pittsburgh, PA 15235, (412) 371-2988.

FOR SALE: Many of your favorite old time radio shows are available on tape cassettes. you select the shows you want and purchase them by the hour. Fast, friendly service. Send for our catalog listing nearly 5,000 shows arranged by category and title. Only \$2.00 (p&h). Send request to: Erstwhile Radio, P. O. Box 2284, Peabody, MA 01960.

WANTED: Anything made by Giblin, standard radio and electric, Royal (Polle-Royal), Triad, Coto-Coil, Ceco, Apco, Allan T. Hanscom, William E. Cheever Co. (Wecco), Electrical Products Mfg. Co., Elmwood Radio Co., Ford Radio Co., Mel-O-Tone, John J. Glidhill, Martin-Copland (Marco), G. Morvillo & Sons, Cats-Me-Ow Crystal Sets, Warren Radio Phone Mfg. Co., Frank B. Perry & Sons, Blackstone, Everite, Radio Progress Magazines and WJAR 1920's Memorabilia. I also research Rhode Island Radio Products so I will always pay for photos or photocopies of Rhode Island Radios, ads, literature or parts that are not for sale. Leonard J. Arzoomanian, 61 Columbus Ave., North Providence, R. I. 02911, (401) 232-0869.

WANTED: GE model P765A transistor radio (page 34, Nov. 89 OTB), have Zenith Royal 500 transistor radio for trade. Also wanted, Zenith Compact 6D-117, (p. 191, Flick of Switch), have mint Philco Transitone PT-91 (p. 132 Flick of Switch) for trade. Have June, July, Sept. and Oct. 1916 mint QSTs for trade for other early QST. Bill Hurni, W3HWT, 329 Evergreen, North Wales, PA 19454.

WANTED TUBES FOR MUSEUM:

Amateur or commercial transmitting and receiving. Tubes purchased, traded or donations welcome. All correspondence answered. Visitors welcome. Ye Olde Transmitting Tube Museum, A. C. Jones, K6DIA, P. O. Box 97, Crescent City, CA 95531, (707) 464-6470.

WANTED: Push buttons and knobs for Crosley model 22CB (1941), must be in good condition. Dial Glass for RCA model A-20, Globe-Trotter radio. Need empty floor model cabinets for RCA A-8 and H31, must be solid and restorable. Dial for RCA model R31. Webcor record player for RCA model V302. Gary Clayton, RR#3, Walkerton, Ont. N0G 2V0. (519) 881-0249, Canada.

FOR SALE: Sams DC-1 dial cord stringing book. Beitmans most-often-needed radio books, 1950-1956. Beitmans most-often-needed 1954 TV book. \$8.00 each. I pay shipping. **WANTED:** Sams DC-7 and DC-8 dial cord stringing books. Beitmans most-often-needed radio books, 1961-1966. The "Radio Boys" first and third books by Morgan. Robert Barr, 3130 Bellanca St., Columbus, GA 31909, (404) 322-2180.

WANTED: Splidorf 1925 "Mikado" radio (with or without matching table), and "Geisha" radio (see pg. 126); and "New Zenith De Luxe Chinese" radio, circa 1925 (see pg. 257) of "Radio Manufacturers of the 1920's—Vol. 3." Also, any other radios with Oriental-style cabinets. Gerald Schneider, 3101 Blueford Rd., Kensington, MD 20895-2726. Telephone (301) 929-8593.

WANTED: Junk parts . . . Jackson-Bell Model #62 chassis, knobs, and speaker. **WANTED:** Miscellaneous junk parts . . . Melody Cruiser Model #921 chassis, knobs, hardware, masts, sails, etc. **WANTED:** Restorable junk chassis and knobs . . . FAdA Model #855 radio. **WANTED:** Cabinets (1 each) and knobs . . . for Emerson Models #540 and #547 radios. **WANTED:** Miscellaneous junk . . . Amrad Double Decker parts. James A. DiRuzza, 2607 Old Troy Pike, Dayton, OH 45404, Telephone (513) 233-5004 evenings.

WANTED: Manual or a copy of a Boonton Radio Corp. Signal Generator Model 202-B. **WANTED:** Two small shielded upright Audio Transformers 1 inch mounting for Case Battery Radio year 1926. John S. Jones, 4453 S 200 E, Anderson, IN 46017, Phone (317) 644-0244.

FOR SALE: Emerson Model 522 (1947) radio that looks like an 8-volume set of encyclopedias with reddish-colored binding, and incised gold detailing, including title on each "volume" and author: "History Of Music" by "Ferguson." Looks and plays well! \$250 postpaid. Gerald Schneider, 3101 Blueford Rd., Kensington, MD 20895-2726. Tel: (301) 929-8593.

SALE: Philmore crystal set — VC-2000 — new in box. Several other crystal sets as well. Call or write for details. Quack Medical Machine \$45.00. Silver Marshall kit of components — all new in boxes \$250.00. Joe Nocera, 1222 Finch St., New Castle, Penn. 16101-4840, Tel: (412) 658-7805.

WANTED: RK67 Manual-Electric-Remote tuning unit for an RCA Victor 816K or G. E. F-167. Bill Elmer, 13503-71 St., Edmonton, Alta, T5C 0N1, (403) 478-6994.

FOR SALE: Thousands of radio tubes, parts, radio books and magazines in our catalog #0692, \$2.00 ppd. Gary B. Schneider, Play Things Of Past, 9511-23 Sunrise Blvd., Cleveland, OH 44133.

FOR SALE: CB Call Books — 1963 (Vol. 4 #1), 1963 Summer (Vol. 4 #2), 1963 Winter (Vol. 4 #3), N.O.S. each \$7.00 or 2 or more \$6.00 each. Add \$1.50 postage per book. Harry Blesy, 2409 Northgate, No. Riverside, IL 60546, (708) 442-8855.

WANTED: McMurdo Silver Masterpiece V (with or without cabinet) and Scott Philharmonic in a horizontal cabinet. **FOR SALE:** E. H. Scott 510 with cabinet \$150.00, huge cabinet diathermy machine with extra output tubes \$150.00. Mike Clark, RR 2, Box 90, Franklin, IN 46131, (317) 738-4649 (6-10 p.m. EST).

WANTED: Complete service manual for Fisher model SA100 power amplifier. **AVAILABLE:** Photocopies of many Fisher service manuals dating from late '40s to early '70s. Very inexpensive. Some parts also available. Al Pugliese, 27 Daleham St., Staten Island, NY 10308, (718) 948-7489 evenings.

WANTED: Citizens Radio Call-book magazines 1920 thru 1926. Bob Arrowsmith, P. O. Box 166, Annadale, Va. 22003 or call collect 1-703-560-7161.

FOR SALE: Heathkit Model IT-12 visual-aural signal tracer with manual, \$20.00 postpaid. Ken Greenberg, 4858 Lee, Skokie, IL 60077, (708) 679-8641.

WANTED: Atwater Kent Models 82, 90 and 165 chassis and speakers — as well as AK Breadboard components (my specialty). AK boards made to exact original specifications, various model sizes, either finished or unfinished — prices reasonable. Trades considered on custom woodwork items — cabinets — specialties — restorations. Have a problem? Try me!! Larry D. Barry, 212 N. 6th Street, Chambersburg, Penn. 17201, Telephone: (717) 263-3804.

WANTED: RK67 manual-electric-remote tuning unit for a RCA Victor 816K or G.E. F-167. Bill Elmer, 13503-71 St., Edmonton, Alta, T5C-0N1. (403) 478-6994.

FOR SALE/TRADE: Radiola 26, Aeriola Sr., Airo-Master (Freshman) battery set, Philco 90, Stewart Warner cathedral (p. 176 FOAS), Predicta TV, AK 3945 breadboard, Coca-Cola Cooler, Philco 20, Philco 70, Large wooden cathedral speaker, Stewart Warner Air-Pal, Philco 60, AK L horn, Zenith bakelite. **WANTED:** Brass knob for Colonial New World globe, AK 228, Aeriola Jr., Crosley Super Buddyboy, AK 10 Radiodyne, Catalins, Novelty sets, early unusual horns & speakers, breadboards. Gary Hill, 1507 Ridge Ave., New Castle, PA 16101, (412) 654-9335.

FOR SALE OR SWAP: Heathkit Model SB110 6 meter SSB transceiver includes power supply, mic, and manual — like new. Trade for 2 meter FM transceiver — collector of Antique Amateur radio equipment. Tad Drogoski N3JZQ, 507 Coal Valley Rd., Jefferson Boro, PA 15025-3703, (412) 466-5950.

WANTED: Can anyone give year made of each different model tube Zenith Trans-Oceanic made and which models offered the brown cases? Gregory Sheppard, 4402 Jupiter St., Rockville, MD 20853.

WANTED: Philco 90 Cathedral, excellent condition. Philco 20 Cathedral Cabinet only. RCA 110/121/140/Tambour-28D. Halli-crafters S-38/38A/38B/38C. Western Electric TT tennis ball tubes. Globe tubes ('01A, '10, '12A, 24A, '26, '42, '45, '47, '50), ST/G tubes (2A3, 5U4G, 5W4G, 6F6G, 6L6G, 6V6G, 12A, 26, 37, 42, 45, 47, 50, 55, 56, 57, 58, 75, 76, 77, 78), US/European collectible tubes/valves, Kunio Okura, JA8BI, 8-3-7 Tokiwa, Urawa, Saitama, Japan, 336.

INTERESTED IN any member or group solely dedicated to old time radio shows. **INTERESTED IN** any books or reprints of any facet of old time radio shows. Dennis B. Burk, 226 East Hemlock Avenue, Sunnyvale, CA 94086.

FOR SALE: Heathkit IT-10 transistor-diode checker. Heathkit IP-18 1-15V regulated power supply. B&K Model FP-3 Dyna-Flex 3-point transistor probe. All of the above with manuals for \$20.00 total including postage. Ken Greenberg, 4858 Lee, Skokie, IL 60077, (708) 679-8641.

WANTED: Western Electric tubes, parts and data-sheet. 101, 102, 104, 205, 211, 212, 216, 242, 252, 262, 271, 274, 275, 276, 284, 300, 310, 339, 347, 348, 349, 350, 421, 422, VT1, VT2, VT3, VT25, VT52 ... etc. Also WANTED Western — Amp., Spkr., socket, parts, Picture Data-sheet, Book ... etc. Others — 50/250/350, 845, VT62/801A, Jun Mizuno, 6711 Mt. Leneve Dr., San Jose, CA 95120, (408) 268-4016.

MR. D. H. MOORE SUCCUMBS

Mr. Howard Granoff has informed ARCA of the passing of Mr. D. H. Moore.

Mr. Moore was noted for all the many books he published relating to the very beginning of wireless/radio equipment.

His painstaking research over many years is shown in many details with numerous wiring diagrams delved from historians of fame.

Here was a man firmly dedicated to the process and the progress of radio — from its inception!

He will be truly missed.

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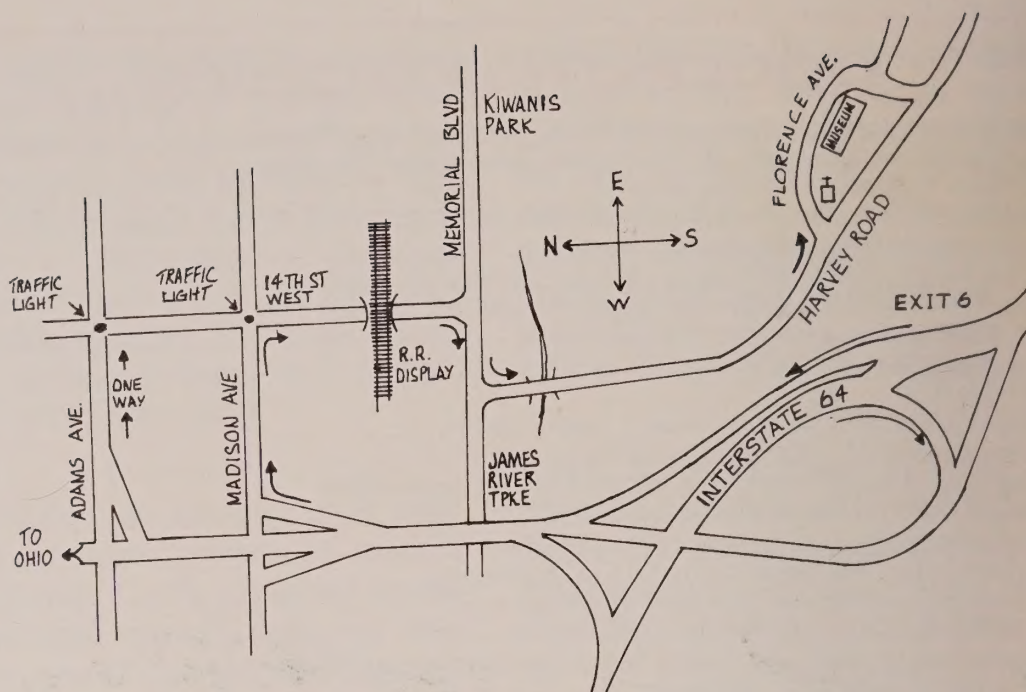
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